AN 16-30ARW26-2

HANDBOOK OF MAINTENANCE INSTRUCTIONS

for

RADIO RECEIVING SET AN/ARW-26

RESTRICTED

(For Official Use Only)

MARSHALL-WHITE, CHICAGO
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Destruction of Abandoned Materiel in the Combat Zone

In case it should become necessary to prevent the capture of this equipment and when ordered to do so, DESTROY IT SO THAT NO PART OF IT CAN BE SALVAGED, RECOGNIZED, OR USED BY THE ENEMY. BURN ALL PAPERS AND BOOKS.

Means:—

1. Explosives, when provided.
2. Hammers, axes, sledges, machetes, or whatever heavy object is readily available.
3. Burning by means of incendiaries such as gasoline, oil, paper, or wood.
4. Grenades and shots from available arms.
5. Burying all debris or disposing of it in streams or other bodies of water, where possible and when time permits.

Procedure:—

1. Obliterate all identifying marks. Destroy nameplates and circuit labels.
2. Demolish all panels, castings, switch- and instrument-boards.
3. Destroy all controls, switches, relays, connections, and meters.
4. Rip out all wiring and cut interconnections of electrical equipment. Smash gas, oil, and water-cooling systems in gas-engine generators, etc.
5. Smash every electrical or mechanical part, whether rotating, moving, or fixed.
6. Break up all operating instruments such as keys, phones, microphones, etc.
7. Destroy all classes of carrying cases, straps, containers, etc.
8. Bury or scatter all debris.

DESTROY EVERYTHING!

★

Unsatisfactory Report

For U. S. Army Air Force Personnel:

In the event of malfunctioning, unsatisfactory design, or unsatisfactory installation of any of the component units of this equipment, or if the material contained in this book is considered inadequate or erroneous, an Unsatisfactory Report, AAF Form No. 54, or a report in similar form, shall be submitted in accordance with the provisions of Army Air Force Regulation No. 15-54, listing:

1. Station and organization.
2. Nameplate data (type number or complete nomenclature if nameplate is not attached to the equipment).
3. Date and nature of failure.
4. Airplane model and serial number.
5. Remedy used or proposed to prevent recurrence.
6. Handbook errors or inadequacies, if applicable.

For U. S. Navy Personnel:

Report of failure of any part of this equipment during its guaranteed life shall be made on Form N, Aer. 4112, "Report of Unsatisfactory or Defective Material," or a report in similar form, and forwarded in accordance with the latest instructions of the Bureau of Aeronautics. In addition to other distribution required, one copy shall be furnished to the inspector of Naval Materiel (location to be specified) and the Bureau of Ships. Such reports of failure shall include:

1. Reporting activity.
2. Nameplate data.
3. Date placed in service.
4. Part which failed.
5. Nature and cause of failure.
6. Replacement needed (yes—no).
7. Remedy used or proposed to prevent recurrence.

For British Personnel:

Form 1022 procedure shall be used when reporting failure of radio equipment.

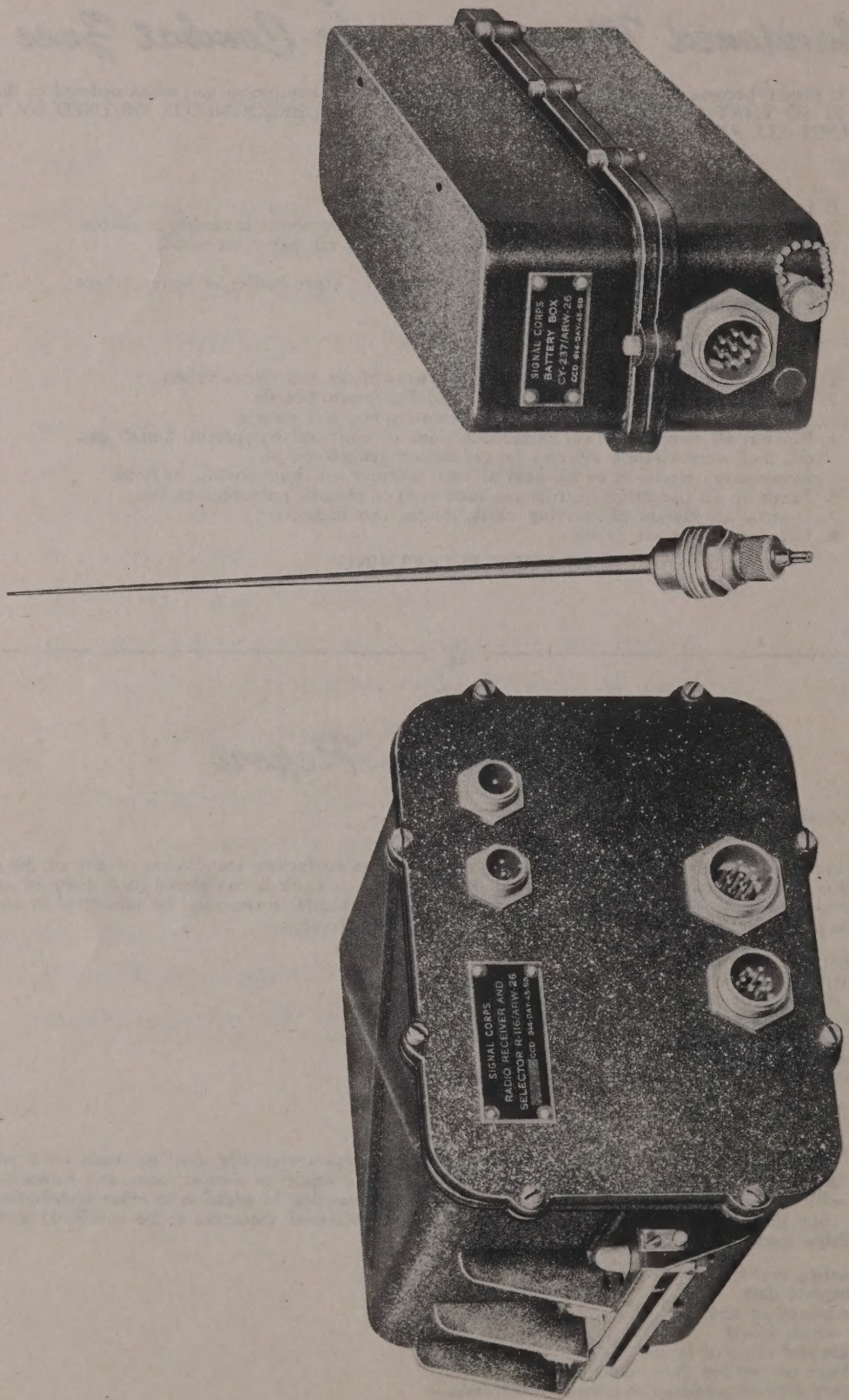


Figure 1-1. Radar Receiving Set AN/ARW-26—Major Components

SECTION I

GENERAL DESCRIPTION

1. GENERAL.

a. PURPOSE.—Radio Receiving Set AN/ARW-26 (see fig. 1-1) forms the receiving end of a radio-remote-control system. Used with associated equipment controlled from a distant station, it directs the operations of a target airplane.

b. FREQUENCY RANGE. — The carrier frequency can be set between 6 and 73 megacycles.

c. POWER.—Batteries contained in Battery Box CY-237/ARW-26 supply all the power necessary for operating the target control receiving equipment. The power furnished is sufficient to allow continuous operation of the equipment for approximately 2½ hours or intermittent operation for 3 hours. Any external load drawn from the battery in addition to the current required by Radio Receiver and Selector R-116/ARW-26 will reduce the operating time proportionally to the load.

d. MODES OF RECEPTION. — Under different modes of reception the target control receiving equipment operates as follows:

(1) When no carrier is received, no relays operate.

(2) When an unmodulated carrier is received, no relays operate.

(3) The 955-cycle relay is actuated whenever a carrier of the proper frequency, modulated by an audio tone of either 300, 650, 955, 1390, or 3000 cycles per second, is received.

(4) The corresponding relay is actuated, in addition to the 955-cycle relay, whenever a carrier modulated by a 300-, 650-, 1390-, or 3000-cycle tone is received.

e. DISTANCE RANGE.—This target control receiving equipment is not intended for use beyond the normal visual range of the control operator. Although it can be controlled from a distance greater than the eye can see, it will not give satisfactory service if such use is attempted.

f. OPERATING TEMPERATURE RANGE. — The equipment will operate at temperatures ranging from −13° F to +158° F (−25° C to +70° C).

g. HUMIDITY RANGE.—The equipment is hermetically sealed and should operate under any prevailing conditions of humidity. Incorporated in the receiver is a silica-gel cartridge for dehydrating; unless the seal is broken or the front panel has been removed, the quantity of silica-gel contained is sufficient for dehydrating for a period in excess of one year. If the receiver has been opened or the seal has been broken, examine the silica-gel cartridge to determine its remaining activity. Replace this cartridge if 50 percent or more of the activity is used. The color chart inside the silica-gel cartridge can be used as a guide to determine the condition of the silica-gel.

2. EQUIPMENT SUPPLIED.

The following table lists the equipment supplied:

Quantity per Equipment	*Name of Part*	*Army Type Designation*	*Navy Type Designation*	*Overall Dimensions (Inches)*	*Weight (Lbs.)*
1	Radio Receiver and Selector, containing:	R-116/ARW-26	R-116/ARW-26	5⅝ x 8 5/16 x 7⅝	4.4
1	Tuning Unit	TU-55		4⅛ x 2⅛ x 2⅝	.4
1	Antenna	AS-234/ARW-26	AS-234/ARW-26	12⅝ long	.3
1	Battery Box	CY-237/ARW-26	CY-237/ARW-26	14⅛ x 3 13/16 x 4 31/64	1.5
2	Mounting	FT-441-B			.1 ea.

3. EQUIPMENT REQUIRED BUT NOT SUPPLIED.

Equipment required but not supplied is the target, a feeler gauge, and testing equipment as specified in the technical order for the specific target in which the control unit is installed. In addition the following equipment is also required:

Quantity per Equipment	*Name of Part*	*Army Type Designation*	*Navy Type Designation*	*Overall Dimensions (Inches)*	*Weight (Lbs.)*
1	Battery (1½ volt)	BA-35		2⅝ x 2⅝ x 4 1/16	1.5
2	Battery (6 volt Burgess Type F4P1, or equal)	BA-210/U		2⅝ x 2⅝ x 4 1/16	1.5 ea.
3	Battery (67½ volt Ever-ready Type 467, or equal)	BA-51		2⅝ x 1¼ x 3½	.75 ea.

Quantity per Equipment	*Name of Part*	*Army Type Designation*	*Navy Type Designation*
1	Cord	CG-312/ARW-26 (—ft. —in.)	CG-312/ARW-26 (—ft. —in.)
1	Cord	CX-661/ARW-26 (—ft. —in.)	CX-661/ARW-26 (—ft. —in.)
1	Cord	CX-662/ARW-26 (—ft. —in.)	CX-662/ARW-26 (—ft. —in.)
1	Cord	CX-664/ARW-26 (—ft. —in.)	CX-664/ARW-26 (—ft. —in.)
1	Headset	HS-23 (or equivalent)	
1	Voltmeter	IS-189 (or equivalent)	

4. DESCRIPTION OF MAJOR ASSEMBLIES.

a. ANTENNA AS-234/ARW-26.—This antenna consists of a 12½-inch tapered, aluminum-alloy whip antenna; an aluminum alloy mounting socket; ½-inch elastic stop nut; packing nut and sleeve; and four 1/16-inch spacer washers. A threaded brass soldering cup contact is included in the base of the antenna. (See fig. 1-2.)

b. BATTERY BOX CY-237/ARW-26.

(1) Battery Box CY-237/ARW-26 (see fig. 1-3) is a rectangular, aluminum-alloy box consisting of a top and lower half. The lower half is equipped with a sealing gasket. The unit becomes hermetically sealed when the upper half is mounted. The lower half of the box is equipped with a battery-connecting harness which connects one Battery BA-35, two Batteries BA-210/U, and three Batteries BA-51. This harness terminates with a seven-contact connector and a single circuit phone jack.

(2) The top half of the box is equipped with two hold-down strips to be used for locking batteries in place to protect them against movement under vibration conditions. (See figs. 1-3 and 8-1.)

c. MOUNTING FT-441-B.—Mounting FT-441-B is made of steel. It is fitted with a phosphorus bronze pressure spring and a tinned copper braid ground strap and also equipped with three shock-mounting assemblies.

d. RADIO RECEIVER AND SELECTOR R-116/ARW-26.

(1) This unit is housed in a rectangular, hermetically sealed aluminum case (see fig. 1-4). Brackets with snap-slide fasteners are attached to either side of the case; these are for attaching the unit to the mountings. Four receptacles are located on the front panel for connecting antenna, parachute, servo unit and battery cable. The phone jack for monitoring the receiver selector is located on the battery box and is connected to the receiver-selector through the 7-connector cable, which interconnects the battery box to the receiver-selector unit.

(2) The main chassis is mounted to the side arms, which in turn are attached to the front panel, making the chassis accessible by removing the eight screws on the front panel.

(3) The case is equipped with a sealing gasket so that when the cover is in place and securely tightened the entire unit is then hermetically sealed.

e. TUNING UNIT TU-55.
(See fig. 1-5.)

(1) This is a plug-in unit with electrical connection made by means of the 7-contact socket located on the bottom end of the unit. No ground connection is made by means of the 7-contact connector.

(2) All units leave the factory adjusted to 73 megacycles. To alter the receiving frequency adjust the r-f and the detector adjustments located on the top of the unit to any desired frequency between 68 and 73 megacycles.

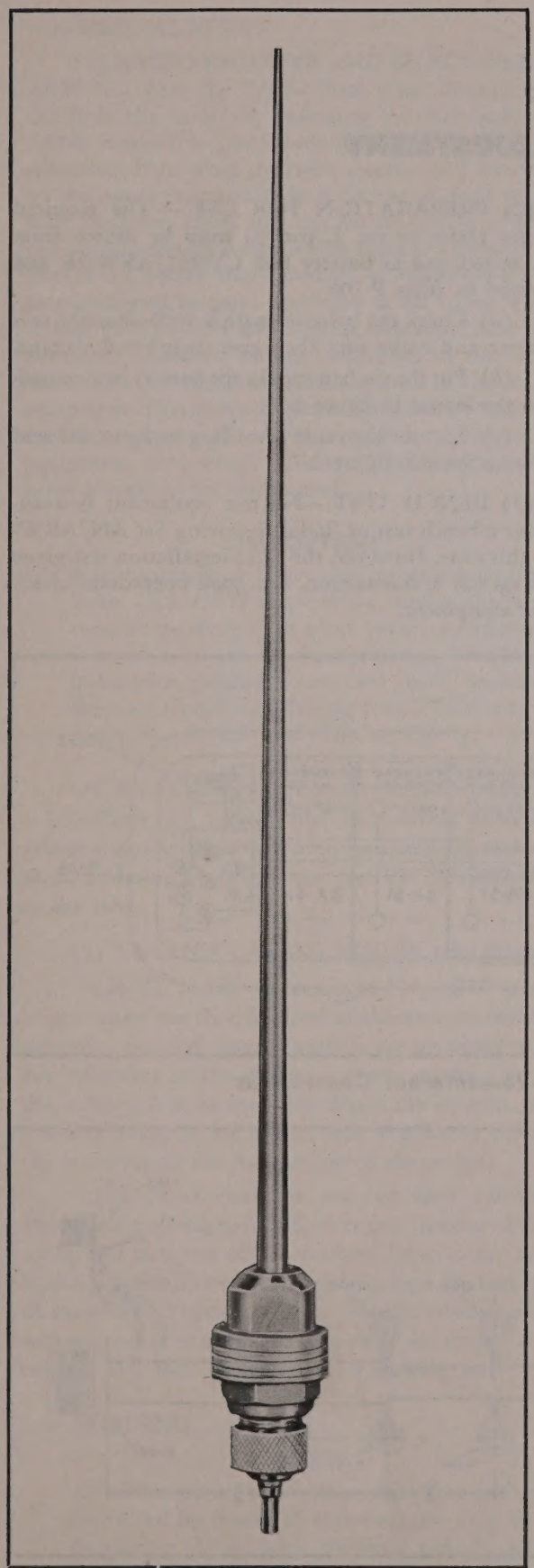


Figure 1-2. Antenna AS-234/ARW-26

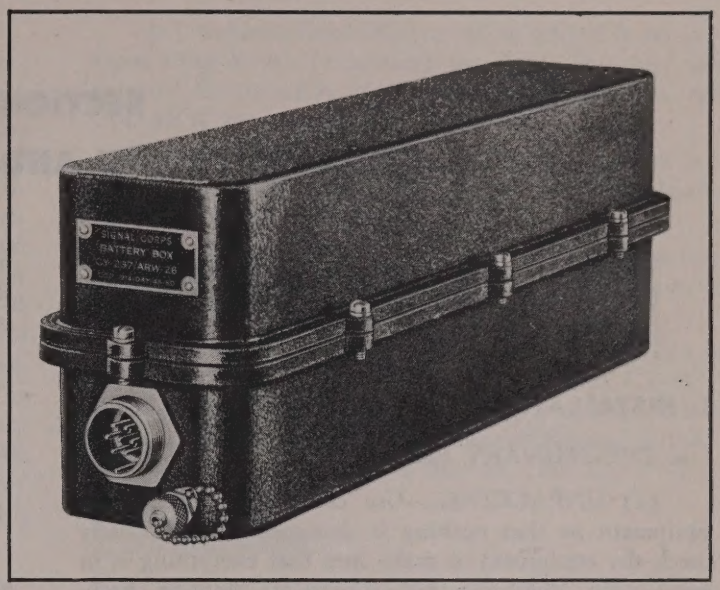


Figure 1-3. Battery Box CY-237/ARW-26

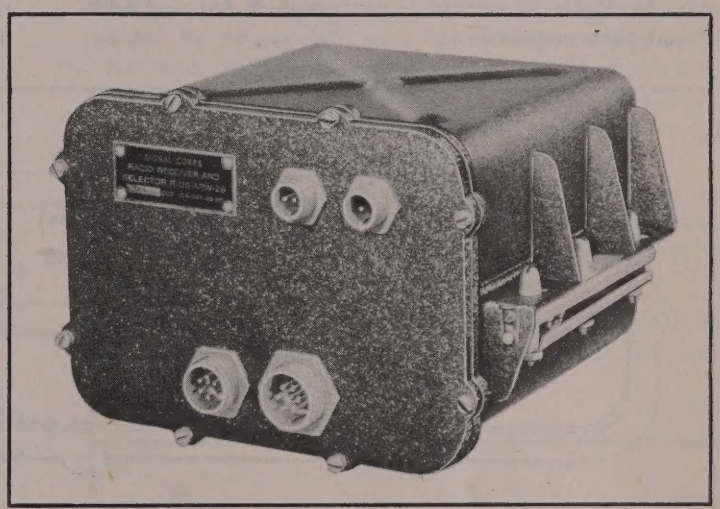


Figure 1-4.
Radio Receiver and Selector R-116/ARW-26

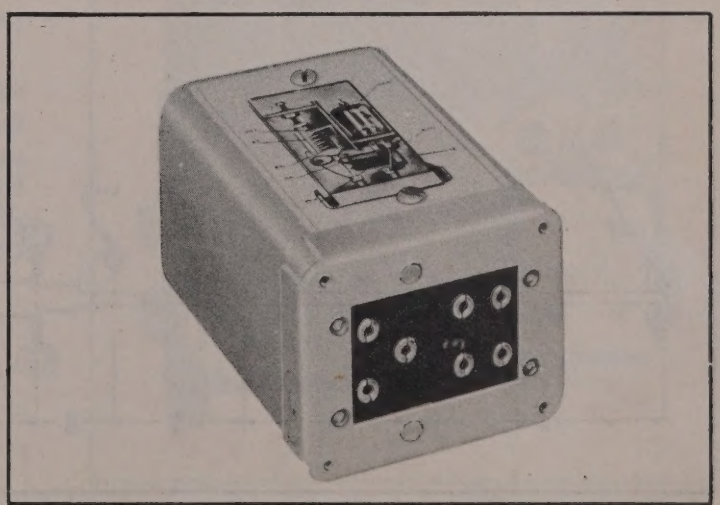


Figure 1-5. Tuning Unit TU-55

SECTION II

INSTALLATION AND ADJUSTMENT

Note

When locating and mounting this equipment in a particular target, refer to the technical order covering that equipment.

1. INSTALLATION.

a. PRELIMINARY PROCEDURE.

(1) UNPACKING.—Use care in unpacking the equipment so that nothing is damaged. Then visually check the equipment to make sure that everything is in good order. Make sure that all parts are there by checking against the list of equipment supplied (refer to sec. I, par. 3). Refer to section I, paragraph 3, for any additional parts required.

(2) PREPARATION FOR USE.—The required batteries (refer to sec. I, par. 3) must be drawn from stock, tested, put in Battery Box CY-237/ARW-26, and connected to plug P-106.

(*a*) Check the batteries with a 1000-ohm-per-volt voltmeter and make sure they give their rated voltage.

(*b*) Put the six batteries in the battery box according to the layout in figure 2-1.

(*c*) Lay out the cable according to figure 2-2 and the connections in figure 2-1.

(3) BENCH TEST.—No test equipment is available for a bench test of Radio Receiving Set AN/ARW-26 at this time. However, the after-installation test given in paragraph 3, this section, is a good operational check of the equipment.

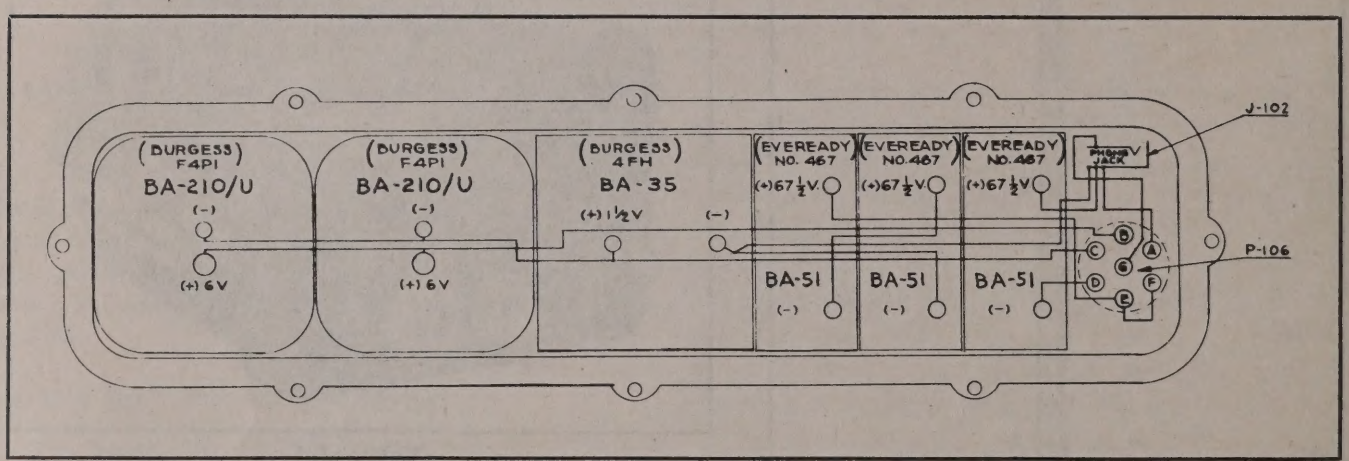


Figure 2-1. Battery Box CY-237/ARW-26—Internal Connections

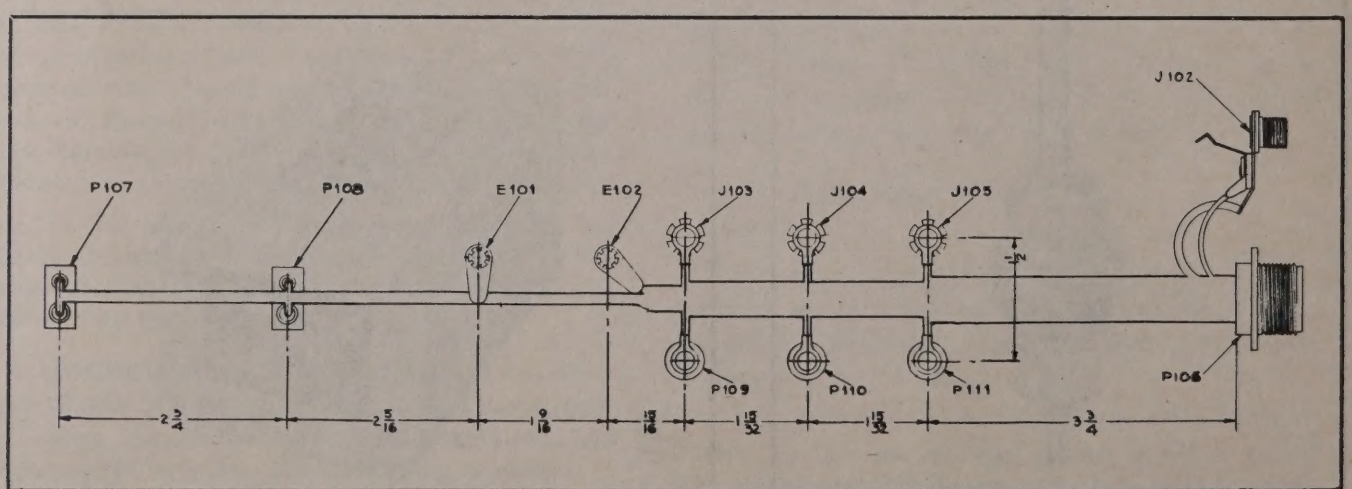


Figure 2-2. Battery Box CY-237/ARW-26—Cable Assembly

b. INSTALLATION.

(1) RADIO RECEIVER AND SELECTOR R-116/-ARW-26.—*(See fig. 1-4.)*—First place Mountings FT-441-B in the target by fastening the free ends of the rubber mounts in place with the nuts and lockwashers furnished. Next place the radio receiver and selector unit on the mountings and slide it backward until the snap-slide fasteners catch and can be closed. It is essential that the grounding straps which furnish a ground circuit around the rubber shock mounts of Mounting FT-441-B be maintained in good condition at all times. The case of the radio receiver and selector unit must have a good electrical connection to the framework of the target to maintain a low-noise interference level in the receiving equipment. This grounding also furnishes a return circuit for certain types of auxiliary apparatus, such as servo equipment, etc., which will not function properly if a solid ground is not maintained.

IMPORTANT

It is absolutely necessary that the side mounting screw (No. 6-32) between the tuning unit and receiver be securely in place before an attempt is made to test or use the equipment. This low-inductance ground connection made between the main chassis and Tuning Unit TU-55 is necessary to provide maximum sensitivity.

(2) BATTERY BOX CY-237/ARW-26. (*See figure 1-3.*)—Place the battery box in position desired and fasten securely. This box need not be grounded to the metal structure as there is no electrical connection made to the box.

(3) ANTENNA AS-234/ARW-26. (*See figure 1-2.*)

(*a*) To install Antenna AS-234/ARW-26 in the target, insert the threaded end of the antenna socket into the hole provided. Spacer washers are provided to allow for tolerances in the thickness of the material to which the antenna is to be mounted. Insert the antenna mast in the hole in top of the socket; lock in place by tightening the set-screw on the flat portion of the socket.

(*b*) To connect the antenna lead, remove the sleeve and packing nut, slide over the antenna cable, and solder the free end of the antenna cable to the antenna lead tip. Screw the antenna lead tip into the bottom end of the socket. Tighten securely. Slip the conduit over the tapered end of the socket; then slide the sleeve over the conduit and lock securely with a packing nut.

c. CORDING.

NOTE

All cables are of the moisture-tight type and are connected by means of inserting the plug and tightening the knurled coupling nut. Be sure the coupling nuts are securely tightened so that proper sealing will be made.

(1) Connect Cord CG-312/ARW-26 (00 ft. 00 in.), from Plug P-102 (1-contact) on Radio Receiver and Selector R-116/ARW-26, to the base of Antenna AS-234/ARW-26. (See figs. 1-4 and 8-7.)

(2) Connect Cord CX-661/ARW-26 (00 ft. 00 in.), from Plug P-105 (6-contact) on the receiver selector, to the servo unit. (See figs. 1-4 and 8-7.)

(3) Connect Cord CX-664/ARW-26 (00 ft. 00 in.), from Plug P-104 (2-contact) on the receiver-selector, to the parachute connection. (See figs. 1-4 and 8-7.)

(4) Place Cord CX-662/ARW-2 (00 ft. 00 in.) in such a position that one end is in Battery Box CY-237/-ARW-26 and the other end is in such a position that it can be plugged into Radio Receiver and Selector R-116/-ARW-26 when operation is desired. (See fig. 8-7.)

2. ADJUSTMENT.

a. TUNING UNIT TU-55.—This unit comes factory-adjusted at 73 megacycles; however, it is designed to operate at a frequency from 68 to 73 megacycles. To adjust the tuning unit to a lower frequency, turn the "RF" and "DET" adjustment screws (see fig. 2-3) clockwise. To change the unit back to a higher frequency, turn the adjustment screws counterclockwise. Follow the tuning procedure given below:

(1) Radiate a weak carrier signal of the desired frequency from Target Control Transmitting Equipment RC-56-A in the vicinity of Antenna AS-234/ARW-26 and modulate it with 955 cycles per second.

(2) Connect a voltmeter across the 955-cycle relay coil (K-105) and tune the detector adjustment for maximum voltage across the relay.

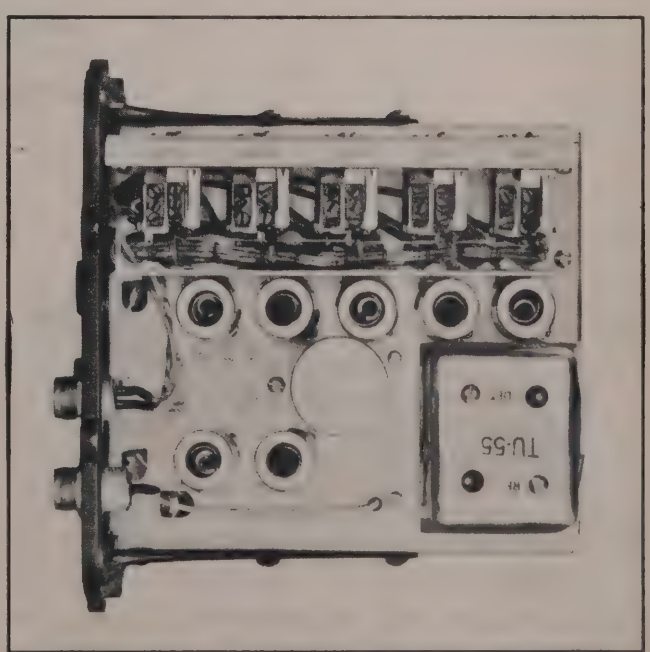


Figure 2-3. Radio Receiver and Selector R-116/ARW-26—Cover Removed

(*a*) Connect the positive terminal of the meter to the terminal "F" of Plug P-103 (7-contact).

(*b*) Connect the negative terminal of the meter to terminal "E" of Plug P-103 (7-contact).

(3) Tune the r-f adjustment for maximum voltage across the relay as in (2), this paragraph. Make sure Antenna AS-234/ARW-26 is connected for this adjustment.

(4) The tuning unit may also be tuned by plugging Headset HS-23 into the phone jack on Battery Box CY-237/ARW-26 and tuning the detector and r-f adjustments for maximum audible response, using a weak modulated signal. This is an alternative method and is not as accurate as the method given in paragraphs (1) through (3).

b. RELAY ADJUSTMENTS.—These relays have been carefully adjusted at the factory. *Do not change the relay adjustments, or the operation of the equipment will be seriously affected.*

3. AFTER INSTALLATION TEST.

a. BATTERY BOX CY-237/ARW-26.—Before operating the target control receiving equipment, remove the cover from the battery box and inspect it to see that all connectors are secure. With the radio receiver and selector unit operating and receiving a signal, measure the voltage of each battery under load. Replace any 6-volt batteries delivering less than 4.8 volts and any 67½-volt batteries delivering less than 60 volts. Replace the additional 1½-volt battery when its initial voltage is less than 1.2 volts.

b. RADIO RECEIVER AND SELECTOR R-116/-ARW-26.—Have Radio Receiving Set AN/ARW-26 completely installed and connected in the target airplane. Turn on Target Control Transmitting Equipment RC-56-A and have the control box in the neutral (center) position.

WARNING

Do not connect power to the selector-receiver until after the transmitting equipment has been turned on. Do not turn off the equipment or remove the signal in any way until after the power has been removed from the receiver-selector. Failure to observe this warning will result in the parachute being opened.

Insert the 7-contact plug (on the connecting cord from the battery box) into the proper receptacle of the receiver-selector and allow at least ½ minute for the tubes to heat. Operate the control box of Target Control Transmitting Equipment RC-56-A under both "HIGH" and "LOW" power output conditions and observe the target for normal functioning as follows:

Control Box Position of Target Control Transmitting Equipment RC-56-A	*Control on Target Airplane that Should Be Activated*
"RIGHT"	Right
"LEFT"	Left
"UP"	Up
"DOWN"	Down

SECTION III

OPERATION

NOTE

Remove the batteries from Battery Case CY-237/ARW-26 if the equipment is not to be used over an indefinite period.

1. STARTING AND STOPPING THE EQUIPMENT.

WARNING

Do not connect power to the selector-receiver until after the transmitting equipment has been turned on. Do not turn off the equipment or remove the signal in any way until after the power has been removed from the receiver-selector. Failure to observe this warning will result in the parachute being opened.

a. STARTING THE EQUIPMENT.—To turn the equipment on, insert the 7-contact plug of the connecting cord into the 7-contact receptacle on Battery Box CY-237/ARW-26.

CAUTION

Do no leave this equipment turned on unnecessarily. The target control receiving equipment is powered by dry batteries which will be quickly exhausted if the equipment is left on.

b. STOPPING THE EQUIPMENT.—To turn the equipment off, remove the 7-contact plug from the battery box.

2. BATTERIES.

Before starting each remote control run, check the batteries to make sure they have sufficient life to complete the intended time of the run. Fresh batteries need not be used for each run if a careful record is kept of battery voltages and the time the batteries have been in use. The batteries usually allow continuous operation for about 2½ hours or 3 hours of intermittent duty. After

the operator has become familiar with the equipment he will be able to judge on the basis of terminal voltage (refer to sec. II, par. 3*a*) or of length of previous use whether another run can successfully be made with the same set of batteries.

3. OPERATION.

After Radio Receiving Set AN/ARW-26 has been installed, tested, and prepared for operation, it is under the control of the operator at Target Control Transmitting Equipment RC-56-A.

SECTION IV

THEORY OF OPERATION

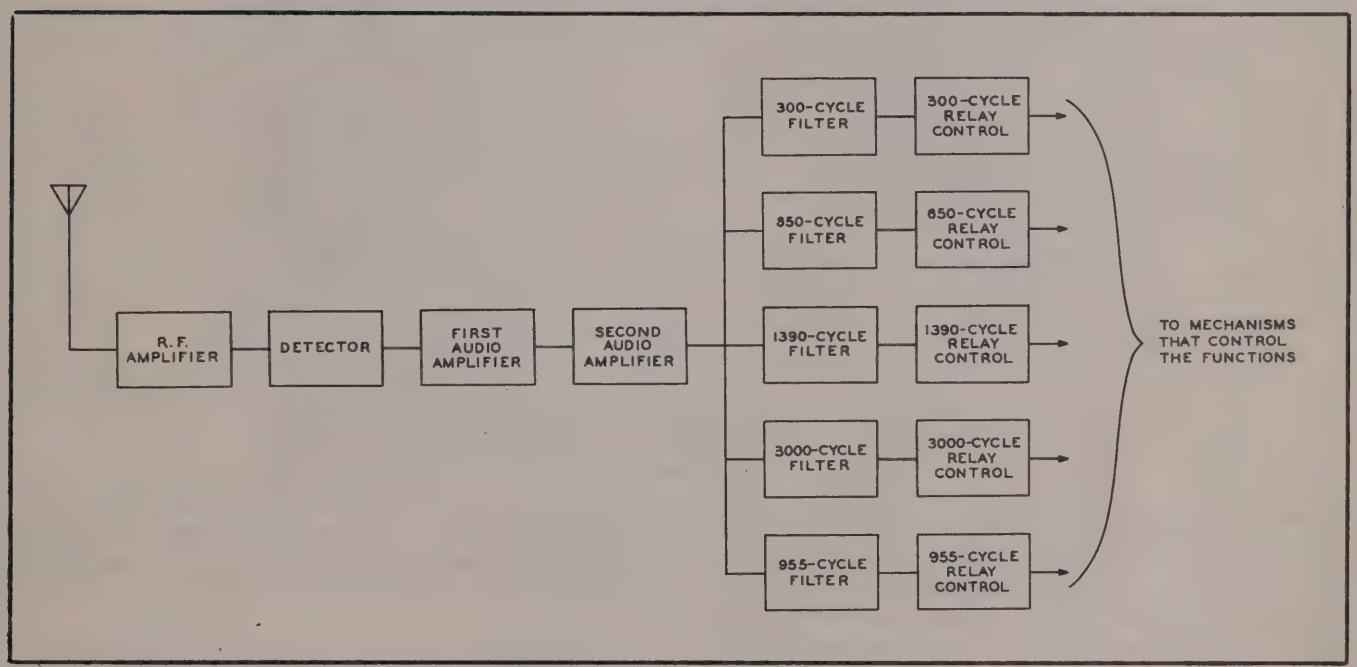


Figure 4-1. Block Diagram

1. GENERAL.

Radio Receiving Set AN/ARW-26 is a super-regenerative amplitude-modulated receiver. It consists of an r-f circuit and an audio circuit. (See fig. 4-1.)

a. ANALYSIS OF R-F CIRCUIT.

(1) Tuning Unit TU-55 receives an r-f signal at its specified frequency. This unit is adjustable over a range from 63 to 73 megacycles.

(2) The modulated r-f signal is fed to a tuned circuit coupled to the input grid of the r-f amplifier tube.

(3) The amplified r-f signal is then coupled to the input grid of a super-regenerative detector tube.

b. ANALYSIS OF AUDIO CIRCUIT.

(1) The rectified signal produced by the detector tube is introduced into the grid of the first audio amplifier.

(2) The audio signal is fed into a second audio amplifier.

(3) From the second audio amplifier tube the output is fed to a bank of five separate band-pass audio filters. Each filter has been set to a predetermined and different frequency of audio response. While the audio input to these five filters is common, the output of each of the filters is fed separately to the grid of its own relay-control tube.

(4) When a sufficiently strong signal is supplied to the grid of a relay-control tube to overcome the $67\frac{1}{2}$-volt blocking bias, current flows in the plate circuit of the tube through the relay solenoid, energizing it and actuating the relay.

(5) When the actuated relay closes its contact, the circuit connected to it is closed, thus controlling the functioning of the target.

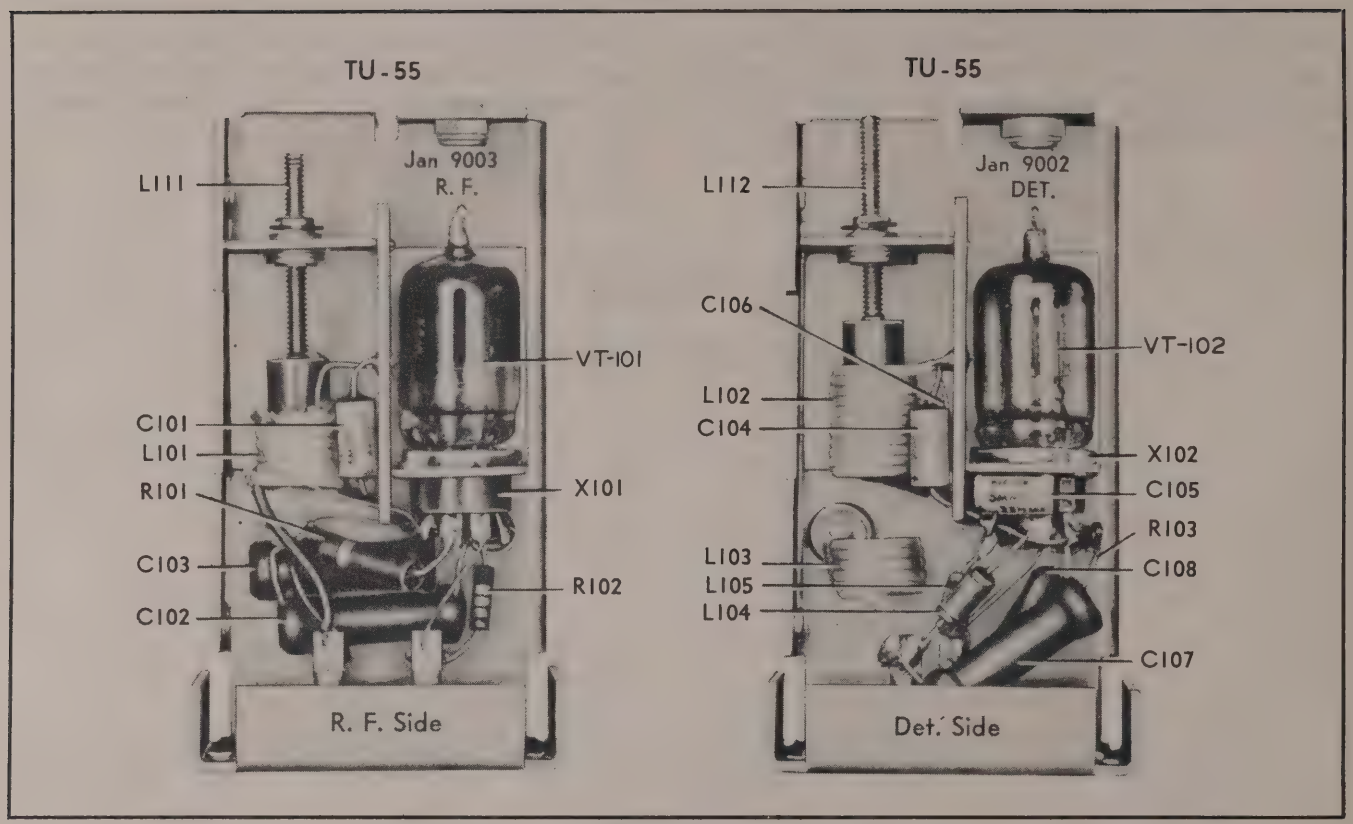


Figure 4-2. Tuning Unit TU-55—Inside Views

2. DETAILED FUNCTIONING.

a. RADIO-FREQUENCY AMPLIFIER and DETECTOR. (*See figure 4-2.*)—The signal from Antenna AS-234/ARW-26 (non-resonant) is fed into the antenna coil of Tuning Unit TU-55 through connectors P-101 and J-101. This antenna coil is tuned to a specified frequency by "RF" adjusting screw and the signal is then applied to the grid of the r-f tube JAN-9003. The output or plate connection of this tube is connected to a coupling coil, which connects it to the super-regenerative detector tube JAN-9002. The output of the detector tube is connected to terminal No. 7 of connector J-101.

b. AUDIO AMPLIFIERS.—Terminal No. 7 of connector P-101 is connected in series with capacitor C-109 and resistor R-105 to the grid of the first audio amplifier JAN-3Q4. The output or plate connection of this tube is connected through a blocking capacitor C-114 to the grid of the second audio amplifier JAN-3Q4. The quench circuit is connected between the plate of the first audio amplifier and the grid of the same tube, for the purpose of high audio-frequency amplification between the frequency of 300 cycles and 3000 cycles and for sharp cut-off for frequencies higher than 3000 cycles. The grid of the first audio amplifier is isolated by means of R-105 for proper feed-back characteristics. R-104 supplies the d-c voltage return for the input grid. The second audio amplifier JAN-3Q4 is biased by means of the voltage available at tap between resistors R-111 and R-112. The output or plate of the second audio amplifier JAN-3Q4 is coupled directly to the capacitor terminal on the five audio filters, namely, Z-101 to Z-105, inclusive. (See fig. 4-3.)

c. AUDIO FREQUENCY FILTERS AND RELAY TUBES.—When an audio frequency of either 300, 650, 1390, 3000, or 955 cycles is applied to the bank of a-f filters, a voltage will be applied to the respective relay tube. When this voltage exceeds the 67.5-volt bias voltage, the tube will then draw current through its respective relay.

d. 955-CYCLE RELAY.—When a modulated signal of 955 cycles is applied, relay K-105 alone will be actuated. When any of the four remaining frequencies is used, its respective relay will be actuated, which in turn makes contact and grounds resistor R-122, thereby actuating the 955-cycle relay K-105.

e. 955-CYCLE PROTECTIVE CIRCUIT.—The contact on the 955-cycle relay K-105 has been connected in series with contacts of the 1390-cycle relay K-103 and the 3000-cycle relay K-104 to ground. This circuit offers protection against the possibility of any one of the relay tubes JAN-3Q4 becoming shorted and holding the 955-cycle circuit closed. As soon as relays K-103 and K-104 are both energized at the same time, the 955-cycle circuit is opened.

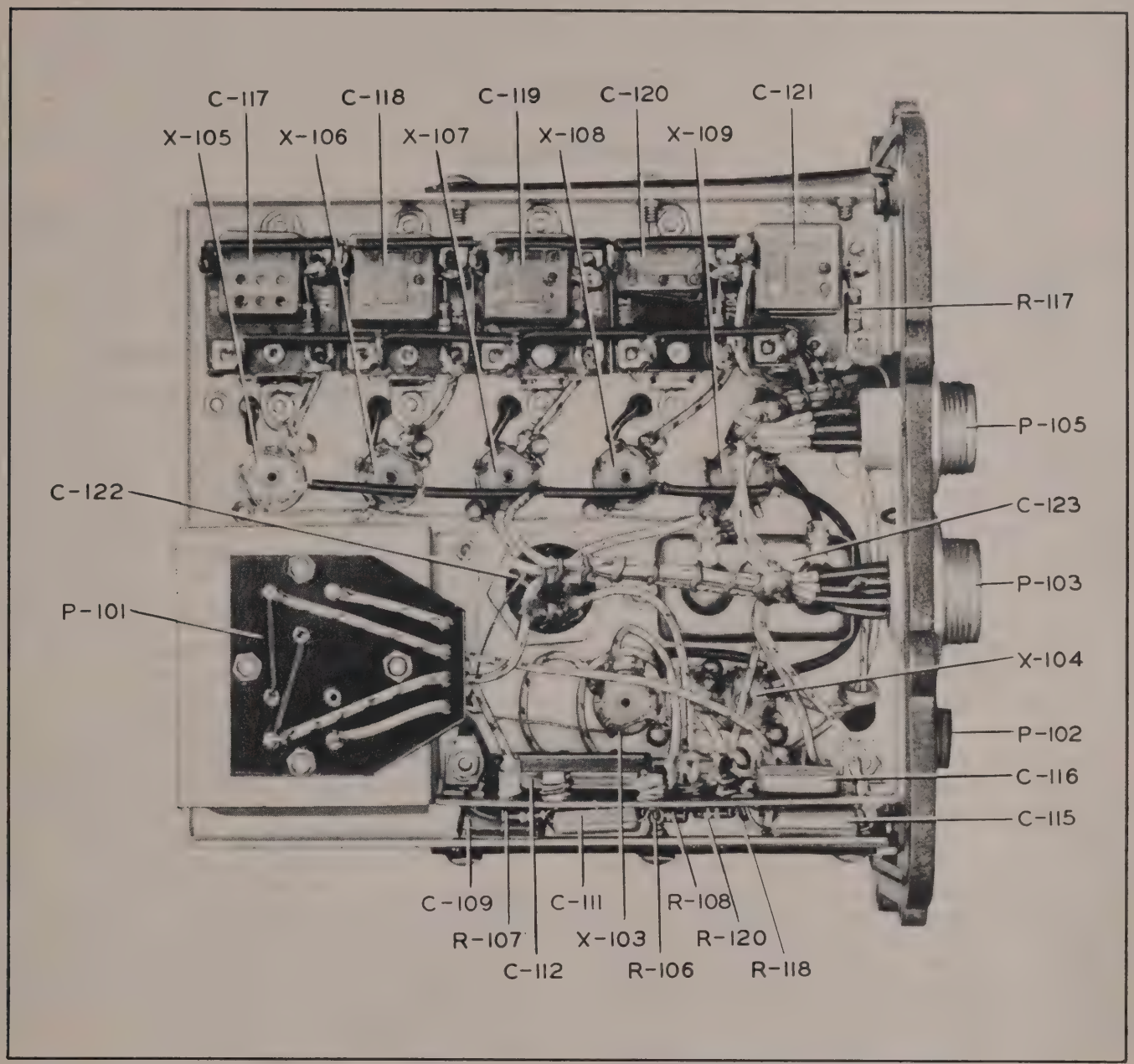


Figure 4-3. Radio Receiver and Selector R-116/ARW-26—Bottom View

f. RECEPTACLE CONNECTIONS.

(*See figure 8-8.*)

(1) Plug P-102 connects the antenna to the receiver.

(2) P-103 is the 7-contact connector with terminals as follows: "A"—ground; "B"—positive 7.5 volts; "C"—positive 1.5 volts; "D"—minus 67.5 volts; "E"—positive 135 volts for the r-f, detector, and audio connections only; "F"—positive 135 volts to relay tubes only; and "G"—monitoring connection which is carried through the battery-connecting cable and terminated at the phone jack on Battery Box CY-237/ARW-28.

(3) Plug P-104 has terminal "A" connected to positive 7.5 volts; and terminal "B" connected to the 955-cycle relay contact.

(4) P-105 is a six-contact connector with "A" terminal connected to neutral, which circuit is closed or connected to chassis when neither the 300-cycle nor 650-cycle relay is energized. Other terminals are connected as follows:

Terminal	*Contact*
"B"	650-cycle relay
"C"	300-cycle relay
"D"	1390-cycle relay
"E"	3000-cycle relay
"F"	Terminal "B" of plug P-103 (positive 7.5-volt source)

SECTION V

MAINTENANCE

IMPORTANT

Periodic inspections prescribed herein represent minimum requirements. If, because of local conditions, peculiarities of equipment, or abnormal usage these inspections are found insufficient to assure satisfactory operation of equipment, local authorities should not hesitate to increase their scope or frequency.

1. INSPECTION.

a. PRE-FLIGHT INSPECTION.

(1) Check the battery cord for hand-tight connections on each end.

(2) Check the antenna cord for hand-tight connections on each end.

(3) Check the parachute cord for hand-tight connections on each end.

(4) Check the servo cord for hand-tight connections on each end.

(5) Check the rubber shock mounts on Mounting FT-441-B for breaks.

(6) Check the seating of the amplifier and relay tubes.

(7) Remove the cover from the battery box and inspect it to see that all connectors are secure. With the radio receiver and selector unit operating and receiving a signal, measure the voltage of each battery under load. Replace any 6-volt batteries delivering less than 4.8 volts and any 67½-volt batteries delivering less than 60.0 volts. Replace the additional 1½-volt battery when its initial voltage is less than 1.2 volts.

(8) Have Radio Receiving Set AN/ARW-26 completely installed and connected in the target airplane. Insert the 7-contact plug (on the connecting cord from the battery box) into the proper receptacle of the receiver-selector and allow at least ½ minute for the tubes to heat. Operate the control box of Target Control Transmitting Equipment RC-56-A under both "HIGH" and "LOW" power output conditions and observe the target for normal functioning as follows:

Control Box Position of Target Control Transmitting Equipment RC-56-A	*Control on Target Airplane that Should Be Activated*
"RIGHT"	Right
"LEFT"	Left
"UP"	Up
"DOWN"	Down

b. 25-HOUR INSPECTION.—A thorough pre-flight inspection should reveal any trouble that develops in the equipment, so no additional inspection procedure will be given.

2. TROUBLE LOCATION AND REMEDIES.

a. AUDIO AMPLIFIERS AND DETECTORS.

(1) LOCALIZING TROUBLE.—After the equipment has been turned on, allow it to warm up for about ½ minute, with no signal input. Then the normal loud hiss of the super-regenerative detector should be heard in a headset plugged into the jack on Battery Box CY-237/ARW-26. If no hiss is heard, the audio amplifiers may be dead or the detector may not be super-regenerating. To distinguish between these failures, touch the grid of the first audio amplifier tube with a screw driver. Be sure not to short other nearby terminals. If there is an audible click or oscillation, the amplifiers are functioning and it may be assumed that the detector is not operating properly. If no click is heard the amplifiers may be at fault. Touch the grid of the second amplifier tube with the screw driver. If a click is heard, the trouble has probably been localized in the first amplifier. If it is not heard, investigate the second amplifier tube.

When an unmodulated carrier signal of the proper frequency is received, the volume of the hiss is reduced by an amount proportional to the strength of the signal. If this does not occur, the r-f amplifier probably is not functioning, or the resonant frequency of the tuning unit is not the same as the carrier frequency. Check by replacing the tuning unit with a unit that is in operating condition.

(2) REMEDIES.—If a failure is traced to a particular tube or circuit, replace the tube, providing no obvious failure such as a broken wire, charred resistor, etc., is found. If replacement of the tube does not correct the failure, check the circuit for defective parts using figure 8-8, schematic circuit diagram. The r-f amplifier and detector tubes are located in the tuning unit. Since the voltage of the tuning unit cannot be measured unless the tubes are removed, give the tuning unit a continuity test.

b. TUNING UNIT TU-55.

(*See figure 1-5.*)

(1) To replace tubes in the tuning unit or to test it separately, remove it from the radio receiver and selector unit by removing the four screws on the bottom and pulling it out of the socket.

(2) To check tubes or the parts of Tuning Unit TU-55 remove the cover which is held in place by six screws; two on one side, two on the other side, and two on top. After testing the tubes and the unit, be sure that cover is properly replaced as the mounting holes will not line up if the direction has been reversed.

c. RADIO RECEIVER AND SELECTOR AN/-ARW-26.

(1) NORMAL SENSITIVITY.—The normal sensitivity of Radio Receiver and Selector AN/ARW-26 is such that an input of 200 microvolts, modulated 60 percent by an audio frequency within ±3 percent of any of the nominal audio frequencies, will cause the corresponding relay to operate satisfactorily at any battery voltages, from the nominal voltages to 75 percent of the nominal values.

(2) LOCALIZING TROUBLE.—To localize trouble in the relays, the relay tubes, and the filters of the radio receiver and selector unit, remember the following points:

(a) The bias supply to all relay-control tubes is common and has a 1-megohm resistor R-119 in series with it.

(b) The relay-control tubes JAN-3Q4 have two filament wires internally connected in parallel. Thus one of these wires may be open without completely opening the filament circuit through the tube. A tube with one filament wire open will usually test good in a standard tube tester, although it will not operate in the radio receiver and selector unit.

(c) Check the socket and relay voltages and substitute new relay-control tubes to locate other troubles. The normal resistance of the relays is 10,000 ohms; that of the selector-filter chokes is from 1000 to 2000 ohms. Higher inductance chokes also have a higher resistance.

IMPORTANT

Do not adjust the relays until all other parts of the circuit have been tested. Relays have been adjusted to pull-in at 2.5 ma., ± 10 percent, and to drop-out at 1 ma. or more. Adjustments of relays is very critical and no attempt should be made to adjust relays by anyone other than a highly experienced technician, having at his disposal proper information pertaining to adjustment of relays.

3. CHART OF COMMON TROUBLES AND REMEDIES.

The following chart gives a list of the common troubles which have been observed during field use of the target control receiving equipment. It does not cover all the troubles which may occur but does provide a basis for logical localization of trouble.

Trouble	*Remedy*
CENTERING or NEUTRAL circuit does not function	This circuit passes through the normally-closed contacts of the 300-cycle and 650-cycle relays. See that neither relay is energized and that the normally-closed contacts are clean and make good contact.
No relays operate	The tuning unit or the audio amplifiers may not be operating. Check by monitoring with Headset HS-23 plugged into the phone jack to determine if the signal is audible. One or more battery voltages may be low; check with the voltmeter.
The 955-cycle relay is de-energized when switching tones	The delay in the de-energizing of this relay may be insufficient due to a defective delay capacitor C-123. Check by substituting another capacitor.
The 955-cycle relay will not de-energize when all modulation is removed	Bias voltage may be low, thereby causing one or more relays to be energized. Any one of the 4 relays may be stuck and should be checked for free action. Noises from external sources, microphonic tubes in Tuning Unit TU-55, or the first audio amplifier tube JAN-3Q4, if it were microphonic, could also cause this condition. Monitoring with a headset, however, would, undoubtedly show up this trouble.
One or more relays operative without signal	Relay control tube bias may be low or missing, or any one of the JAN-3Q4 tubes may be shorted.
Tuning Unit TU-55 oscillating at audio frequency without signal	Substitute another detector tube and retune.

Note

Most common cause of trouble is JAN-3Q4 tubes being low or shorted, batteries being run down, or poor connection made between contact and battery.

SECTION VI

SUPPLEMENTARY DATA

1 TUBE COMPLEMENT

The following table lists the tube complements:

Reference Symbol	*VT Number*	*JAN Number*	*Function*
V-101	VT-203	JAN-9003	R. F. Amplifier
V-102	VT-202	JAN-9002	Detector
V-103	VT-264	JAN-3Q4	1st audio amplifier
V-104	VT-264	JAN-3Q4	2nd audio amplifier
V-105	VT-264	JAN-3Q4	300-cps. relay control
V-106	VT-264	JAN-3Q4	650-cps. relay control
V-107	VT-264	JAN-3Q4	1390-cps. relay control
V-108	VT-264	JAN-3Q4	3000-cps. relay control
V-109	VT-264	JAN-3Q4	955-cps. relay control

2. MODULATING TONE AND CONTROL ACTIVATED.

Following is the modulating tone and the corresponding tone and the corresponding control it operates in the target aircraft:

a. When a 300-cycle modulating tone is used, the "right" control should be activated.

b. When a 650-cycle modulating tone is used, the "left" control should be activated.

c. When a 1390-cycle modulating tone is used, the "up" control should be activated.

d. When a 3000-cycle modulating tone is used, the "down" control should be activated.

e. When a 955-cycle modulating tone is used, no control is activated, but the chute coil must be energized.

SECTION VII

PARTS CATALOG

INTRODUCTION

Table of Parts

The parts listed in this table do not constitute a complete electrical and mechanical breakdown of the equipment. The table lists all electrical parts together with such operative mechanical parts as are subject to loss or failure, with the exception of structural and minor parts such as standard bolts, screws, nuts, and the like. In some instances individual detail parts of a sub-assembly may not be listed as separate items, since replacement of such items is impractical.

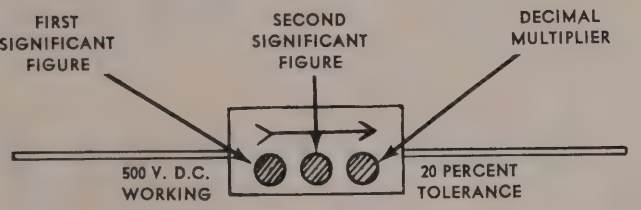
Ordering of Spare Parts

Each service using this list has established certain depots and service groups for the storage and issue of spare parts to its organizations requiring them. The regulations of each Service should be studied to determine the method and source for requisitioning spare parts. The information in this list, as to manufacturer's or contractor's name, type, model, or drawing number, is not to be interpreted as authorization to field agencies to attempt to purchase identical or comparable spare parts directly from the manufacturer or a wholesale or retail store except under emergency conditions as covered by existing regulations of the Service concerned.

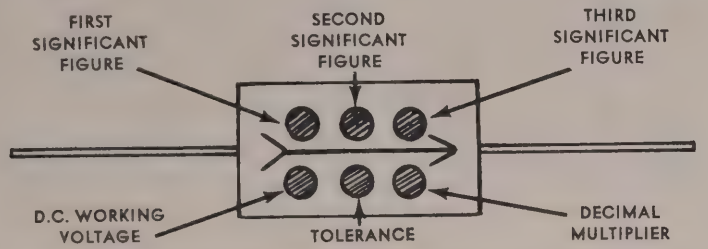
U. S. Army Personnel: This table is for information *only* and is not to be used as a basis for requisitioning parts. Authorities for obtaining maintenance items are as follows: 1. For using organizations: applicable Service publications of the 00-30 series of AAF Technical Orders. 2. For higher maintenance and supply echelons: applicable Service publications of the 08-55 series of AAF Technical Orders.

RMA COLOR CODES

FOR CAPACITORS (MMFD)



COLOR	NUMERAL	VOLTS	MULTIPLIER	TOLERANCE
BLACK	0		1	
BROWN	1	100	10	1%
RED	2	200	100	2%
ORANGE	3	300	1,000	3%
YELLOW	4	400	10,000	4%
GREEN	5	500	100,000	5%
BLUE	6	600	1,000,000	6%
VIOLET	7	700	10,000,000	7%
GRAY	8	800	100,000,000	8%
WHITE	9	900	1,000,000,000	9%
GOLD		1000	0.1	5%
SILVER		2000	0.01	10%
NO COLOR		500		20%

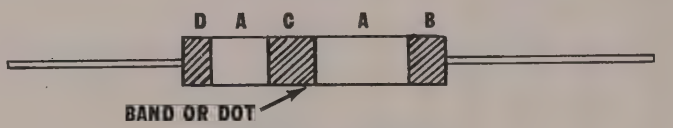


FOR RESISTORS (OHMS)

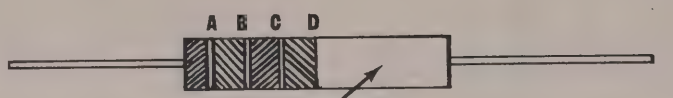
COLOR	A 1ST DIGIT	B 2ND DIGIT	C MULTIPLIER
SILVER			0.01
GOLD			0.1
BLACK		0	1.0
BROWN	1	1	10
RED	2	2	100
ORANGE	3	3	1,000
YELLOW	4	4	10,000
GREEN	5	5	100,000
BLUE	6	6	1,000,000
PURPLE	7	7	10,000,000
GRAY	8	8	100,000,000
WHITE	9	9	

D — TOLERANCE CODE:

GOLD = 5% SILVER = 10% NO COLOR = 20%



OLD COLOR ARRANGEMENT



NEW COLOR ARRANGEMENT

BODY COLOR (NEW COLOR ARRANGEMENT ONLY) INDICATES TYPE OF RESISTOR, AS FOLLOWS:—

BLACK — COMPOSITION, NON-INSULATED
TAN, OLIVE OR WHITE — COMPOSITION, INSULATED
DARK BROWN — WIRE-WOUND, INSULATED

TABLE OF PARTS

MODEL:
RADIO RECEIVING SET AN/ARW-26

MAJOR ASSEMBLY:
TUNING UNIT TU-55

Reference Symbol	*Army Stock Number Navy Stock Number British Ref. Number*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or Standard Type*	*Cont. or Govt. Dwg. or Spec. No.*
C-101	*	Capacitor: Fixed, 5 mmfd. Tol. 5%	Tunes L-101	Erie NPOAS	Jan-C-20
C-102	*	Capacitor: Fixed, 500 mmfd. Tol. 10%	R.F. cathode bypass	Erie N750 or Centralab 814-048	Jan-C-20
C-103	*	Capacitor: Fixed, 500 mmfd. Tol. 10%	R.F. screen bypass	Erie N750 or Centralab 814-048	Jan-C-20
C-104	*	Capacitor: Fixed, 5 mmfd. Tol. 5%	Tunes L-102	Erie NPOAS	Jan-C-20
C-105	*	Capacitor: Fixed, 5 mmfd. Tol. 5%	Tunes L-102	Erie NPOAS	Jan-C-20
C-106	*	Capacitor: Fixed, 50 mmfd. Tol. 10%	Det. grid coupling	Erie NPOC or Centralab 813-161	Jan-C-20
C-107	*	Capacitor: Fixed, 500 mmfd. Tol. 10%	Plus "B" bypass	Erie N750 or Centralab 814-048	Jan-C-20
C-108	*	Capacitor: Fixed, 105 mmfd. Tol. 10%	Q freq. control	Erie NPOD or Centralab 813-034	Jan-C-20
L-101	*	Coil: Antenna	Couples ant. to R.F. grid	Bangor Electronic Industries	Jan-C-20
L-102	*	Coil: Grid Det.	Tunes Det. grid	Bangor Electronic Industries	
L-103	*	Coil: R. F. Plate	Couples R.F. to Det.	Bangor Electronic Industries	
L-104		Coil: R. F. Choke	Det. plate filter	Bangor Electronic Industries	
L-105	*	Coil: R. F. Choke	Det. grid filter	Bangor Electronic Industries	
L-111	*	Tuning Slug	Tunes ant. coil L-101	Bangor Electronic Industries	
L-112	*	Tuning Slug	Tunes Det. coil L-102	Bangor Electronic Industries	
R-101	*	Resistor: Fixed, 250 ohm 1/3 watt, Tol. 10%	R. F. Bias	I.R.C.—BTS	Jan-R-11
R-102	*	Resistor: Fixed, 25M ohm 1/3 watt, Tol. 10%	R. F. screen dropping	I.R.C.—BTS	Jan-R-11
R-103	*	Resistor: Fixed, 25M ohm 1/3 watt, Tol. 10%	Det. grid return	I.R.C.—BTS	Jan-R-11
J-101	*	Connector: 7-contact socket	Connects TU-55 to set	H. B. Jones	A16AO42A
X-101	*	Socket: Miniature	R.F. Jan. 9003 tube socket	Cinch #9824	Jan-S-28
X-102	*	Socket: Miniature	Det. Jan. 9002 tube socket	Cinch #9824	Jan-S-28

* Not available as spare part; listed for reference purposes only.

TABLE OF PARTS (Continued)

MODEL: RADIO RECEIVING SET AN/ARW-26 — **MAJOR ASSEMBLY:** TUNING UNIT TU-55

Reference Symbol	*Army Stock Number Navy Stock Number British Ref. Number*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or Standard Type*	*Cont. or Govt. Dwg. or Spec. No.*
	2J9003	Tube: Electron, Jan 9003, VT203, U.H.F. Midget remote cutoff pentode	R.F. Amp.	RCA 9003	Jan. 1A
	2J9002	Tube: Electron, Jan. 9002 VT202, U.H.F. Midget triode	Det.	RCA 9002	Jan. 1A

MODEL: RADIO RECEIVING SET AN/ARW-26 — **MAJOR ASSEMBLY:** RADIO RECEIVER AND SELECTOR R-116/ARW-26

C-109	*	Capacitor: Fixed, .005 mfd, mica, tol. 5%	1st audio grid coup.	Solar—MW	Jan-C-5
C-110	*	Capacitor: Fixed, 50 mmfd, mica, tol. 10%	Q—filter	Solar—MOW	Jan-C-5
C-111	*	Capacitor: Fixed, 100 mmfd, mica, tol. 10%	Q—filter	Solar—MOW	Jan-C-5
C-112	3DKA200-8	Capacitor: Fixed, .2 mfd, paper, 200 wv, tol. 20%	Screen bypass	Solar—MPW Domino	71-516E
C-113	*	Capacitor: Fixed, 100 mmfd, mica, tol. 10%	Q—filter	Solar—MOW	Jan-C-5
C-114	*	Capacitor: Fixed, .005 mfd, mica, tol. 5%	2nd audio grid coup.	Solar—MW	Jan-C-5
C-115	*	Capacitor: Fixed, .001 mfd, mica, tol. 5%	2nd audio plate bypass	Solar—MW	Jan-C-5
C-116	*	Capacitor: Fixed, .001 mfd, mica, tol. 5%	Monitoring coupling	Solar—MW	Jan-C-5
C-117	*	Capacitor: Fixed, .005 mfd, mica, tol. 5%	Tunes L106 to 300 cy.	Solar—MW	Jan-C-5
C-118	*	Capacitor: Fixed, .005 mfd, mica, tol. 5%	Tunes L107 to 650 cy.	Solar—MW	Jan-C-5
C-119	*	Capacitor: Fixed, .002 mfd, mica, tol. 5%	Tunes L108 to 1390 cy.	Solar—MW	Jan-C-5
C-120	*	Capacitor: Fixed, .001 mfd, mica, tol. 5%	Tunes L109 to 3000 cy.	Solar—MW	Jan-C-5
C-121	*	Capacitor: Fixed, .003 mfd, mica, tol. 5%	Tunes L110 to 995 cy.	Solar—MW	Jan-C-5
C-122	3DB20-84	Capacitor: Electrolytic, 20-20 mfd, 250 DCWV	"B" filter	Solar—DI	Jan-C-62
C-123	3DB15-34	Capacitor: Electrolytic, 15 mfd, 100 DCWV	K105 delay	Solar—LDXD	Jan-C-62

* Not available as spare part; listed for reference purposes only.

TABLE OF PARTS (Continued)

MODEL: RADIO RECEIVING SET AN/ARW-26

MAJOR ASSEMBLY: RADIO RECEIVER AND SELECTOR R-116/ARW-26

Reference Symbol	*Army Stock Number Navy Stock Number British Ref. Number*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or Standard Type*	*Cont. or Govt. Dwg. or Spec. No.*
C-124	3DKA200-8	Capacitor: Fixed, .2 mfd, paper, 200 V, tol. 20%	300 cy. relay bypass	Solar—MPW Domino #3	71-516E
C-125	3DKA200-8	Capacitor: Fixed, .2 mfd, paper, 200 V, tol. 20%	650 cy. relay bypass	Solar—MPW Domino #3	71-516E
C-126	3DKA200-8	Capacitor: Fixed, .2 mfd, paper, 200 V, tol. 20%	1390 cy. relay bypass	Solar—MPW Domino #3	71-516E
C-127	3DKA200-8	Capacitor: Fixed, .2 mfd, paper, 200 V, tol. 20%	3000 cy. relay bypass	Solar—MPW Domino #3	71-516E
C-128	3DKA200-8	Capacitor: Fixed, .2 mfd, paper, 200 V, tol. 20%	955 cy. relay bypass	Solar—MPW Domino #3	71-516E
C-129	3DKA200-8	Capacitor: Fixed, .2 mfd, paper, 200 V, tol. 20%	"C" bias by-pass	Solar—MPW Domino #3	71-516E
X-103	2Z8678.219	Socket: Miniature	1st audio, JAN-3Q4 socket	Eby 102M #7676	Jan-S-28
X-104	2Z8678.219	Socket: Miniature	2nd audio, JAN-3Q4 socket	Eby 102M #7676	Jan-S-28
X-105	2Z8678.219	Socket: Miniature	300 cy. JAN-3Q4 socket	Eby 102M #7676	Jan-S-28
X-106	2Z8678.219	Socket: Miniature	650 cy. JAN-3Q4 socket	Eby 102M #7676	Jan-S-28
X-107	2Z8678.219	Socket: Miniature	1390 cy. JAN-3Q4 socket	Eby 102M #7676	Jan-S-28
X-108	2Z8678.219	Socket: Miniature	3000 cy. JAN-3Q4 socket	Eby 102M #7676	Jan-S-28
X-109	2Z8678.219	Socket: Miniature	955 cy. JAN-3Q4 socket	Eby 102M #7676	Jan-S-28
	2Z8308-28	Shield: Miniature tube	3Q4 socket, secures	Eby—1¾ #7797	Jan-S-28
L-106	*	Choke: 300 cy. filter	Selects 300 cy.	Melco Products #4400	WT45-38
L-107	*	Choke: 650 cy. filter	Selects 650 cy.	Melco Products #4401	WT45-38

* Not available as spare part; listed for reference purposes only.

TABLE OF PARTS (Continued)

MODEL: RADIO RECEIVING SET AN/ARW-26
MAJOR ASSEMBLY: RADIO RECEIVER AND SELECTOR R-116/ARW-26

Reference Symbol	*Army Stock Number Navy Stock Number British Ref. Number*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or Standard Type*	*Cont. or Govt. Dwg. or Spec. No.*
L-108	*	Choke: 1390 cy. filter	Selects 955 cy.	Melco Products #4403	WT45-38
L-109	*	Choke: 3000 cy. filter	Selects 3000 cy.	Melco Products #4404	WT45-38
L-110	*	Choke: 955 cy. filter	Selects 955 cy.	Melco Products #4402	WT45-38
K-101	2Z7589-121	Relay: 10,000 ohm coil, leads 8″, contacts 1A, 1C	300 cy. control	Auto. Elec. Sales Corp. Type S	
K-102	2Z7589-121	Relay: 10,000 ohm coil, leads 8″, contacts 1A, 1C	650 cy. control	Auto Elec. Sales Corp. Type S	
K-103	2Z7589-121	Relay: 10,000 ohm coil, leads 8″, contacts 1A, 1C	1390 cy. control	Auto. Elec. Sales Corp. Type S	
K-104	2Z7589-121	Relay: 10,000 ohm coil, leads 8″, contacts 1A, 1C	3000 cy. control	Auto. Elec. Sales Corp. Type S	
K-105	2Z7589-121	Relay: 10,000 ohm coil, leads 8″, contacts 1A, 1C	955 cy. control	Auto. Elec. Sales Corp. Type S	
R-104	3RC20BE105K	Resistor: Fixed, 1 meg. 1/3 watt, tol. 10%	1st audio grid ret.	I.R.C.–BTS or Stackpole-CM1/3	Jan-R 11
R-105	3Z6750-31	Resistor: Fixed, ½ meg. 1/3 watt, tol. 10%	1st audio grid iso.	I.R.C—BTS or Stackpole-CM1/3	Jan-R-11
R-106	3RC20BE-104K	Resistor: Fixed, 100M ohm 1/3 watt, tol. 10%	Q—filter	I.R.C.—BTS or Stackpole-CM1/3	Jan-R-11
R-107	3RC20BE104K	Resistor: Fixed, 100M ohm 1/3 watt, tol. 10%	Q—filter	I.R.C.—BTS or Stackpole-CM1/3	Jan-R-11
R-108	3Z4573	Resistor: Fixed, 2 meg. 1/3 watt, tol. 10%	1st audio screen dr.	I.R.C.—BTS or Stackpole-CM1/3	Jan-R-11
R-109	3Z6720-32	Resistor: Fixed, 200M ohm 1/3 watt, tol. 10%	1st audio plate	I.R.C.—BTS or Stackpole-CM1/3	Jan-R-11
R-110	3RC20BE105K	Resistor: Fixed, 1 meg. 1/3 watt, tol. 10%	2nd audio grid ret.	I.R.C.—BTS or Stackpole-CM1/3	Jan-R-11
R-111	3Z6050-121	Resistor: Fixed, 500 ohm 1/3 watt, tol. 10%	2nd audio bias	I.R.C.—BTS or Stackpole-CM1/3	Jan-R-11
R-112	3Z6580-19	Resistor: Fixed, 8000 ohm ½ watt, tol. 10%	Bias batt. bleeder	I.R.C.—BT ½ or Stackpole-CM½	Jan-R-11

* Not available as spare part; listed for reference purposes only.

TABLE OF PARTS (Continued)

MODEL: RADIO RECEIVING SET AN/ARW-26

MAJOR ASSEMBLY: RADIO RECEIVER AND SELECTOR R-116/ARW-26

Reference Symbol	*Army Stock Number Navy Stock Number British Ref. Number*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or Standard Type*	*Cont. or Govt. Dwg. or Spec. No.*
R-113	3Z6650-52	Resistor: Fixed, 50M ohm 1/3 watt, tol. 10%	300 cy. grid limiting	I.R.C.—BTS or Stackpole-CM1/3	Jan-R-11
R-114	3Z6650-52	Resistor: Fixed, 50M ohm 1/3 watt, tol. 10%	650 cy. grid limiting	I.R.C.—BTS or Stackpole-CM1/3	Jan-R-11
R-115	3Z6650-52	Resistor: Fixed, 50M ohm 1/3 watt, tol. 10%	1390 cy. grid limiting	I.R.C.—BTS or Stackpole-CM1/3	Jan-R-11
R-116	3Z6650-52	Resistor: Fixed, 50M ohm 1/3 watt, tol. 10%	3000 cy. grid limiting	I.R.C.—BTS or Stackpole-CM1/3	Jan-R-11
R-117	3Z6650-52	Resistor: Fixed, 50M ohm 1/3 watt, tol. 10%	955 cy. grid limiting	I.R.C.—BTS or Stackpole-CM1/3	Jan-R-11
R-118	3Z6625-92	Resistor: Fixed, 25M ohm 1/3 watt, tol. 10%	2nd audio plate and screen	I.R.C.—BTS or Stackpole-CM1/3	Jan-R-11
R-119	3RC20BE105K	Resistor: Fixed, 1 meg. 1/3 watt, tol. 10%	Relay tubes bias	I.R.C.—BTS or Stackpole-CM1/3	Jan-R-11
R-120	3Z6500157	Resistor: Fixed, 5000 ohm 1/3 watt, tol. 10%	Plus "B" isolating	I.R.C.—BTS or Stackpole-CM1/3	Jan-R-11
R-121	3Z6500-157	Resistor: Fixed, 5000 ohm 1/3 watt, tol. 10%	Decoupling	I.R.C.—BTS or Stackpole-CM1/3	Jan-R-11
R-122	3RC20153K	Resistor: Fixed, 15,000 ohm ½ watt, tol. 5%	Closing 955 cy. relay	I.R.C.—BT ½ or Stackpole-CM½	Jan-R-11
P-101		Connector: 7 prong plug	TU-55	Jones, H. B.	WT45-6
P-102	2Z3Q21-24	Connector: 1 contact plug	Ant.	Amphenol AN3102PR-10S-2P	WC-591
P-103	2Z7117.11	Connector: 7 contact plug	Connects set to batt.	Amphenol AN3102-16S-1P-181	WC-591
P-104	2Z7112.27	Connector: 2 contact plug	Connects set to chute	Amphenol AN3102-10SL-4P-181	WC-591
P-105	2Z7116.40	Connector: 6 contact plug	Connects set to serve	Amphenol AN3102PR-14S-6P	WC-591
Z-101	3Z1892-23	300-cycle filter assembly	Sel. 300 cy.	Setchell-Carlson	WT45-38

* Not available as spare part; listed for reference purposes only.

TABLE OF PARTS (Continued)

MODEL: RADIO RECEIVING SET AN/ARW-26
MAJOR ASSEMBLY: RADIO RECEIVER AND SELECTOR R-116/ARW-26

Reference Symbol	*Army Stock Number Navy Stock Number British Ref. Number*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or Standard Type*	*Cont. or Govt. Dwg. or Spec. No.*
Z-102	3Z1892-23.1	650-cycle filter assembly	Sel. 650 cy.	Setchell-Carlson	WT45-38
Z-103	3Z1892-23.2	1390-cycle filter assembly	Sel. 1390 cy.	Setchell-Carlson	WT45-38
Z-104	3Z1892-23.3	3000-cycle filter assembly	Sel. 3000 cy.	Setchell-Carlson	WT45-38
Z-105	3Z1892-23.4	955-cycle filter assembly	Sel. 955 cy.	Setchell-Carlson	WT45-38
V-103	2J3Q4	Tube: Electron, JAN-3Q4, VT-264, min. pentode	1st audio amp.	Tung-Sol	JAN 1A
V-104	2J3Q4	Tube: Electron, JAN-3Q4, VT-264, min. pentode	2nd audio amp.	Tung-Sol	JAN 1A
V-105	253Q4	Tube: Electron, JAN 3Q4, VT-264, min. pentode	300 cy. relay tube	Setchell-Carlson	JAN 1A
V-106	253Q4	Tube: Electron, JAN 3Q4, VT-264, min. pentode	650 cy. relay tube	Setchell-Carlson	JAN 1A
V-107	253Q4	Tube: Electron, JAN 3Q4, VT-264, min. pentode	1390 cy. relay tube	Setchell-Carlson	JAN 1A
V-108	253Q4	Tube: Electron, JAN 3Q4, VT-264, min. pentode	3000 cy. relay tube	Setchell-Carlson	JAN 1A
V-109	253Q4	Tube: Electron, JAN 3Q4, VT-264, min. pentode	955 cy. relay tube	Setchell-Carlson	JAN 1A
	2Z1578.14	Cabinet: Receiver case, complete with gasket and 2 snap slide assbys		Setchell-Carlson	WT45-1
	2Z7091-81	Panel: Front, receiver, selector, complete less nameplate & connectors		Setchell-Carlson	AWT45-4
	*	Gasket: Cabinet	Sealing	Durkee-Atwood	Setchell-Carlson Prt. No. WT45-15
	*	Gasket: Soft rubber 1¼″ O.D. x 1″ I.D. x 1/32″	Gasket P-103	Western Rubber Co.	
	*	Gasket: Soft rubber 1⅛″ O.D. x ⅞″ I.D. x 1/32″	Gasket P-105	Western Rubber Co.	

* Not available as spare part; listed for reference purposes only.

TABLE OF PARTS (Continued)

MODEL: RADIO RECEIVING SET AN/ARW-26

MAJOR ASSEMBLY: RADIO RECEIVER AND SELECTOR R-116/ARW-26

Reference Symbol	*Army Stock Number Navy Stock Number British Ref. Number*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or Standard Type*	*Cont. or Govt. Dwg. or Spec. No.*
	*	Gasket: Soft rubber 7/8" O.D. x 5/8" I.D. x 1/32"	Gasket P-102 & P-104	Western Rubber Co.	
		Cartridge: silica-gel	Dehydrating	United Refr. Co.—Special	Setchell-Carlson Prt. No. WT45-37
	*	Nut: 7-contact connector		Amphenol #3066-4 1/8" thick	
	*	Nut: 6-contact connector		Amphenol #3066-8 1/8" thick	
	*	Nut: 1 & 2 contact connector		Amphenol #3066-10 1/8" thick	
	*	Brace: Bottom	Supports center chock	Setchell-Carlson	Govt. Prt. No. SC-D-5853-E
	*	Ground Strap; Tinned copper braid	Grd. conn.	Setchell-Carlson	Govt. Prt. No. SC-D-5853-E
	2Z8501-5	Mounts; Shock, rubber	Shock mtg.	U. S. Rubber #A321	
	*	Stud: Mounted in end of top brace	Snap slide catch	Setchell-Carlson	Govt. Prt. No. SC-D-5853-E
	*	Spring: Bronze, mounted on top of brace	Grd. conn.	Setchell-Carlson	Govt. Prt. No. SC-D-5853-E
	*	Brace: Top	Supports shocks.	Setchell-Carlson	Govt. Prt. No. SC-D-5853-E

MODEL: RADIO RECEIVING SET AN/ARW-26

MAJOR ASSEMBLY: ANTENNA AS-234/ARW-26

		Rod: Aluminum, 11 11/16" lg		Setchell-Carlson	WT45-5
	*	Bushing: Threaded aluminum mtg.		Setchell-Carlson	WT45-11
	*	Nut: Packing, cable attach		Setchell-Carlson	WT45-12

* Not available as spare part; listed for reference purposes only.

TABLE OF PARTS (Continued)

MODEL: RADIO RECEIVING SET AN/ARW-26
MAJOR ASSEMBLY: ANTENNA AS-234/ARW-26

Reference Symbol	*Army Stock Number Navy Stock Number British Ref. Number*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or Standard Type*	*Cont. or Govt. Dwg. or Spec. No.*
	*	Sleeve: Cable attaching		Setchell-Carlson	WT45-14
	*	Nut: Elastic Stop, 1/2—20.		Elastic Stop Nut Co. #99TE080	
	*	Contact: Threaded soldering contact, brass; spec. No. 72, 1/2 hard; 3-56 NF-2 thread; overall dimen. 9/16″ x 3/16″ O.D.	Contact		SC-D-18121
	*	Washer: Aluminum, 1/16″ thick x 1″ O.D. x 1/2″ I.D.	Spacer		SC-D-18121

MODEL: RADIO RECEIVING SET AN/ARW-26
MAJOR ASSEMBLY: BATTERY BOX CY-237/ARW-26

	*	Box: Top, batt., with hold-down strips		Setchell-Carlson	WT45-2
	*	Box: Bottom, batt., with gasket		Setchell-Carlson	WT45-3
	*	Gasket: Rubber	Box sealing	Durkee-Atwood	WT45-16
	3E7282	Cable Assembly: Batt. box	Batt. conn.	Setchell-Carlson	WT45-39
J-103-104-105	*	Fastener: Female contact	Batt. term.	United Carr Fastener Co.	WT45-39
P-109-110-111	*	Fastener: Male contact	Batt. term.	United Carr Fastener Co.	WT45-39
P-107-108	*	Plug: Battery	Batt. term.	Natl. Fabr. Prod. #2915	
P-106		Connector: (Same as P-103)			
E-101-102	*	Lug: Terminal	Batt. term.	Shakeproof #2102-8	
	*	Strips: Wood, hold-down left and right side	Batt. hold-down	Bodine Mfg.	WT45-20

* Not available as spare part; listed for reference purposes only.

TABLE OF PARTS (Continued)

MODEL: RADIO RECEIVING SET AN/ARW-26

MAJOR ASSEMBLY: BATTERY BOX CY-237/ARW-26

Reference Symbol	*Army Stock Number Navy Stock Number British Ref. Number*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or Standard Type*	*Cont. or Govt. Dwg. or Spec. No.*
J-102	———	Jack: Single circuit	Monitor	Yaxley A-1	
	———	Cap: Phone jack, assby.	Moist. Seal	Setchell-Carlson	AWT45-21
	*	Gasket: Soft rubber 1¼″ O.D. x 1″ I.D. x 1/32″.	P-106 gask.	Western-Rubber Co.	
	*	Gasket: Soft rubber ½″ O.D. x ⅜″ I.D. x 1/64″.	J-102 gask.	Western-Rubber Co.	
	*	Gasket: Soft rubber ⅜″ O.D. x 1/16″.	Jack cap gask.	Western-Rubber Co.	

* Not available as spare part; listed for reference purposes only.

SECTION VIII

DRAWINGS

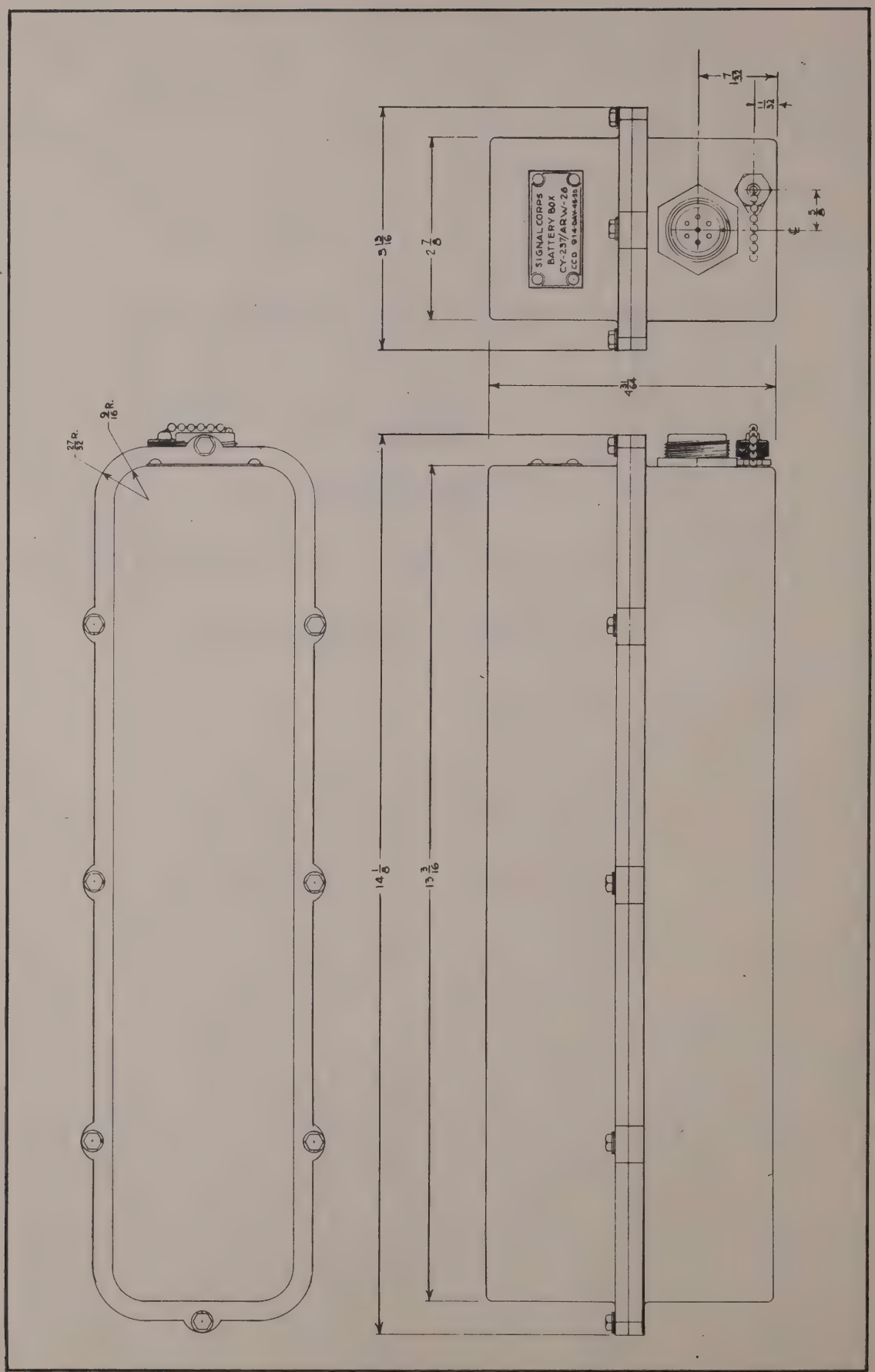


Figure 8-1. Battery Box CY-237/ARW-26—Outline Dimensional Drawing

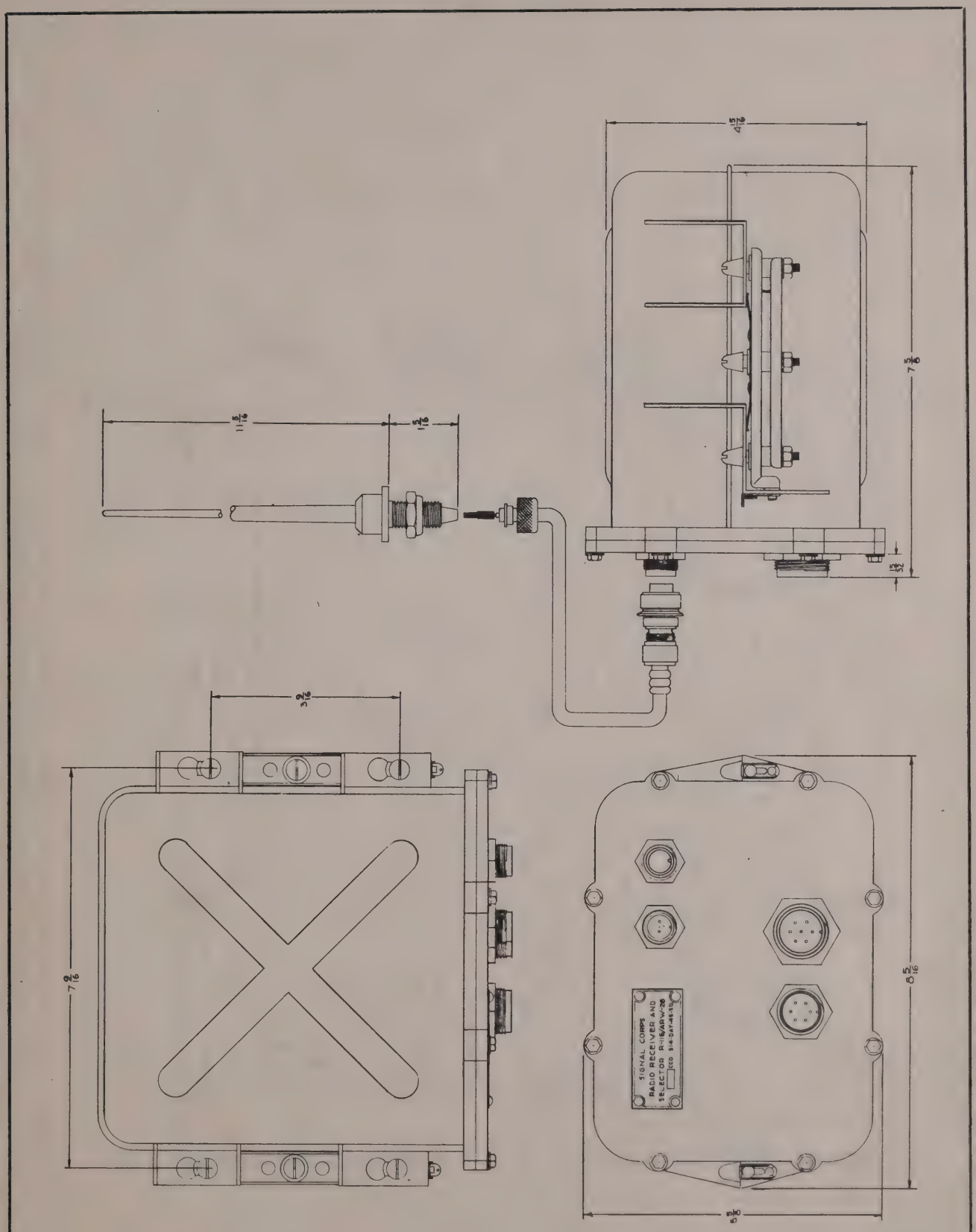


Figure 8-2. Radio Receiver and Selector R-116/ARW-26—Outline Dimensional Drawing Showing Antenna AS-234/ARW-26

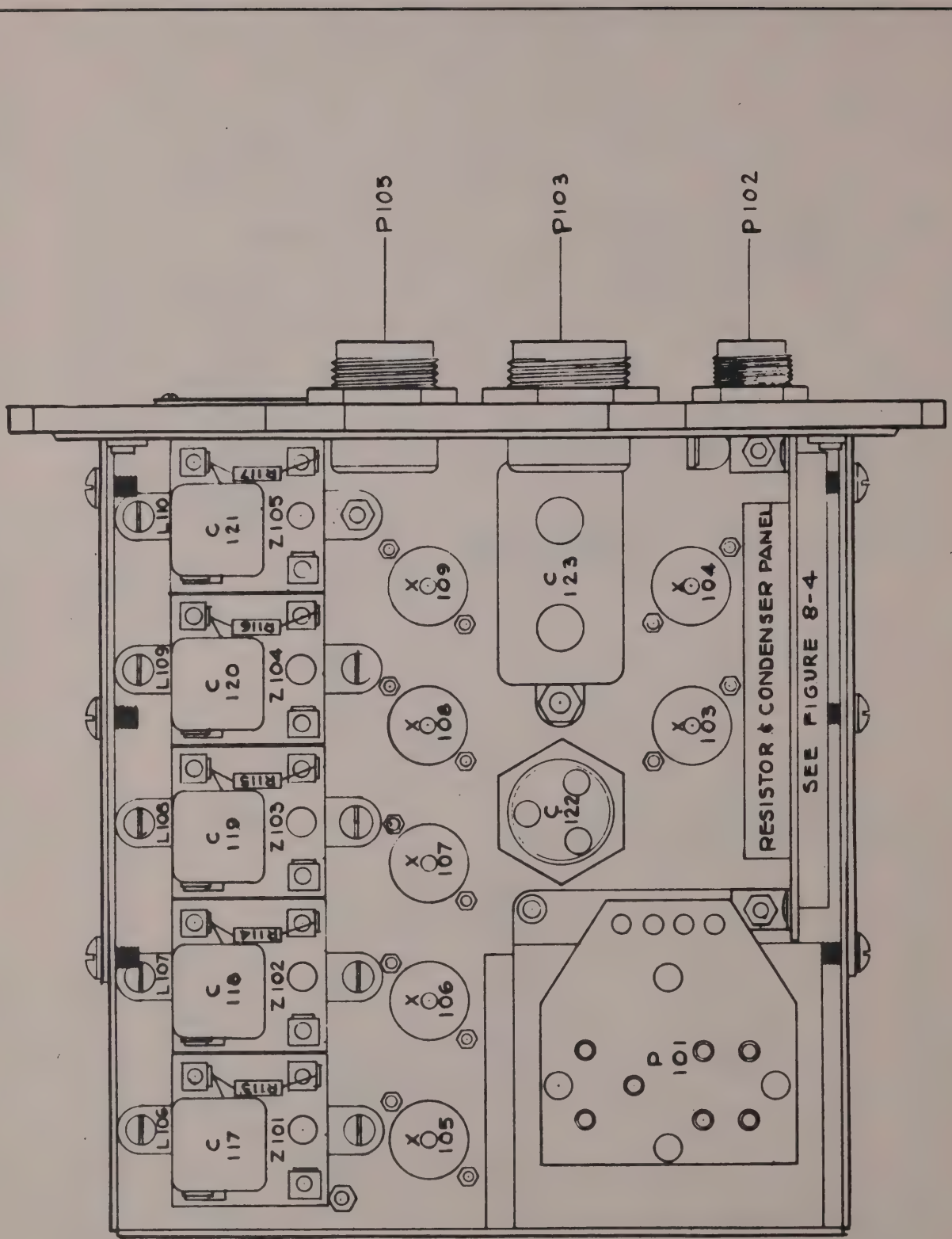


Figure 8-3. Radio Receiver and Selector R-116/ARW-26—Bottom View

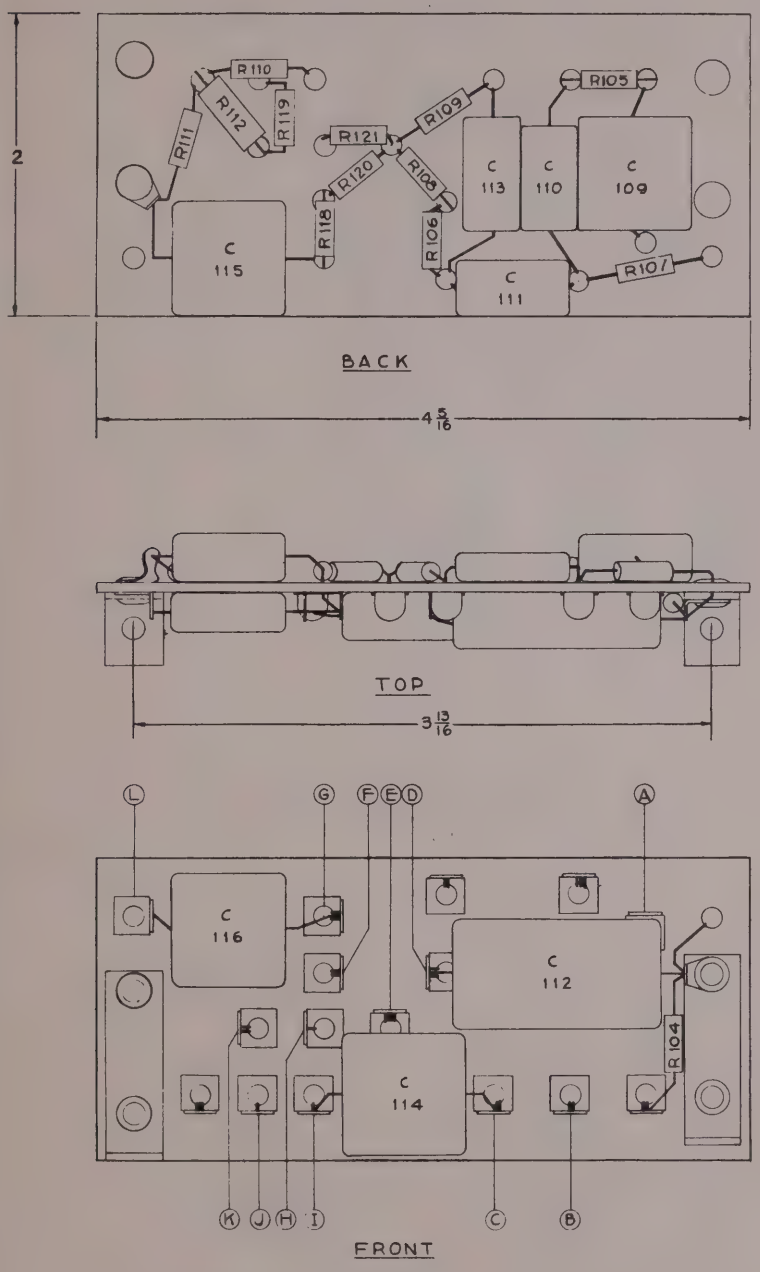


Figure 8-4. Resistor—Capacitor Panel Parts

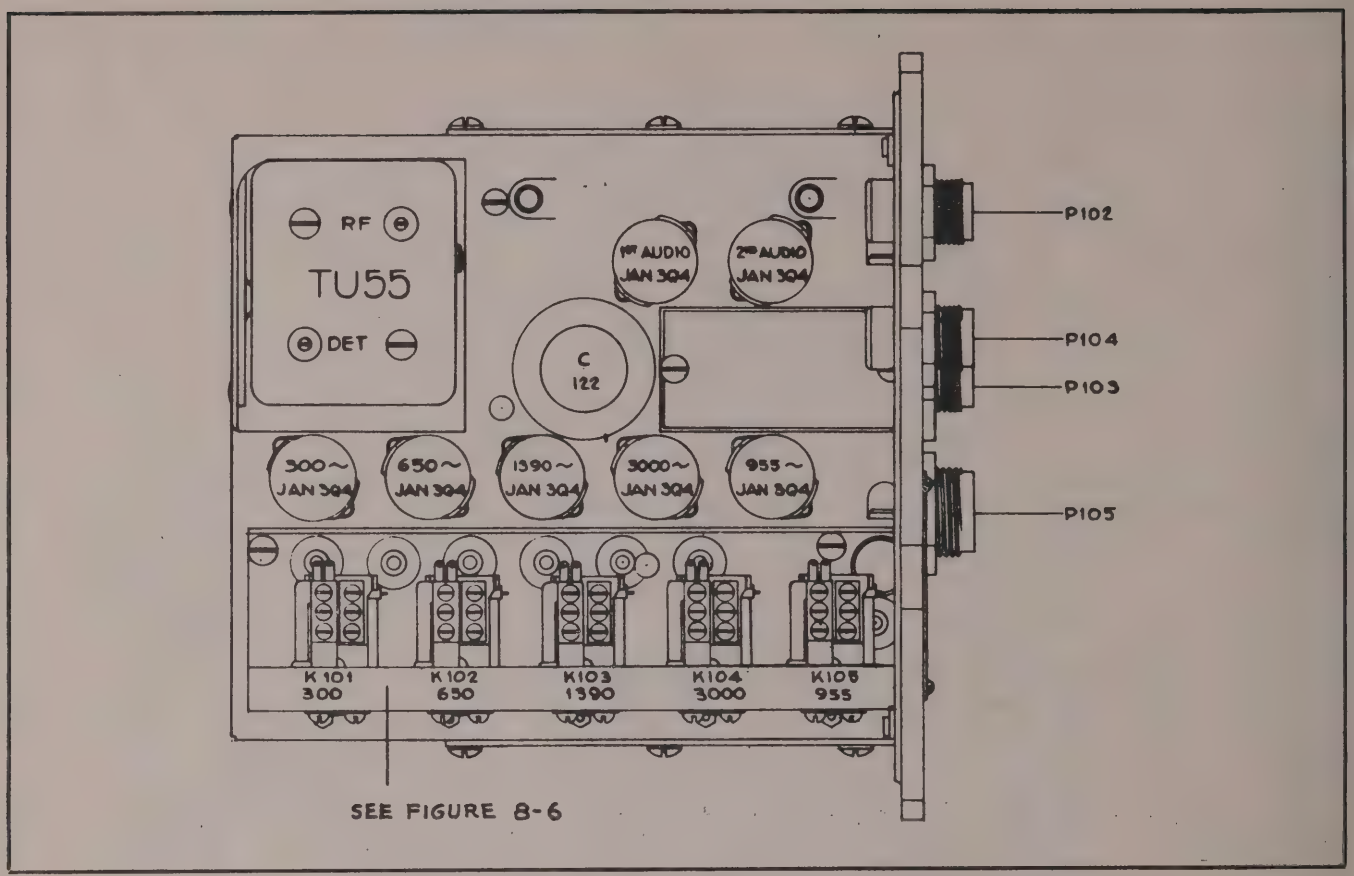


Figure 8-5. Radio Receiver and Selector R-116/ARW-26—Top View

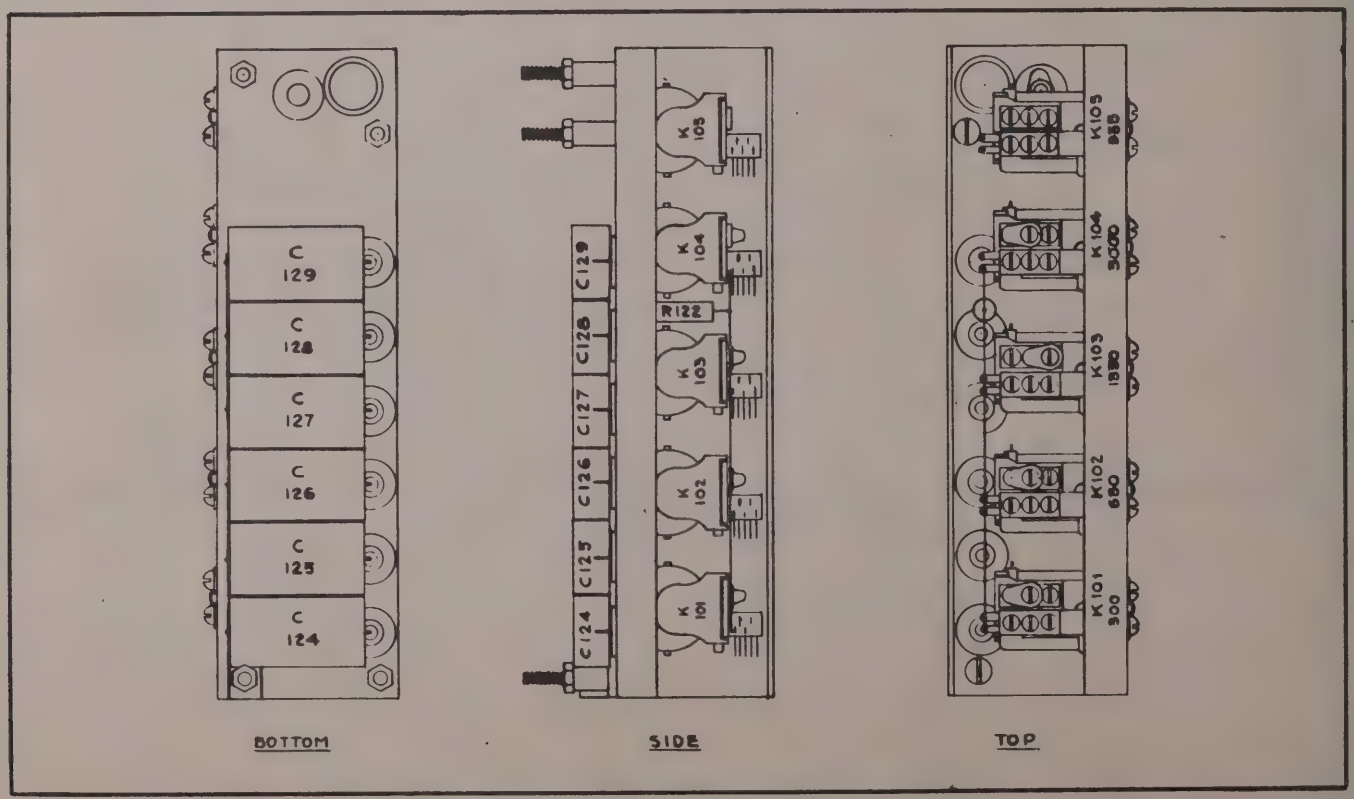


Figure 8-6. Relay Panel—Top, Bottom, and Side View

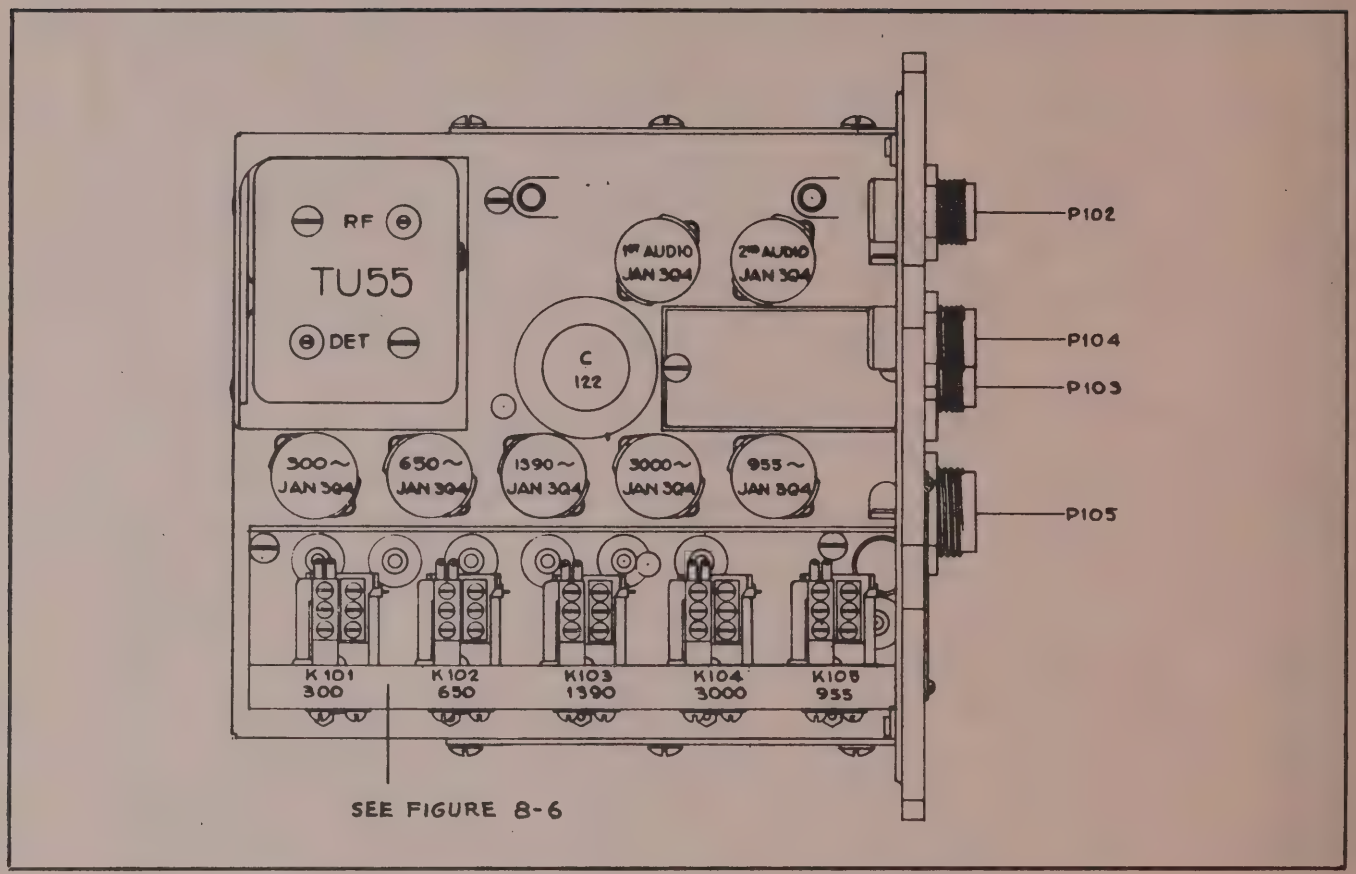


Figure 8-5. Radio Receiver and Selector R-116/ARW-26—Top View

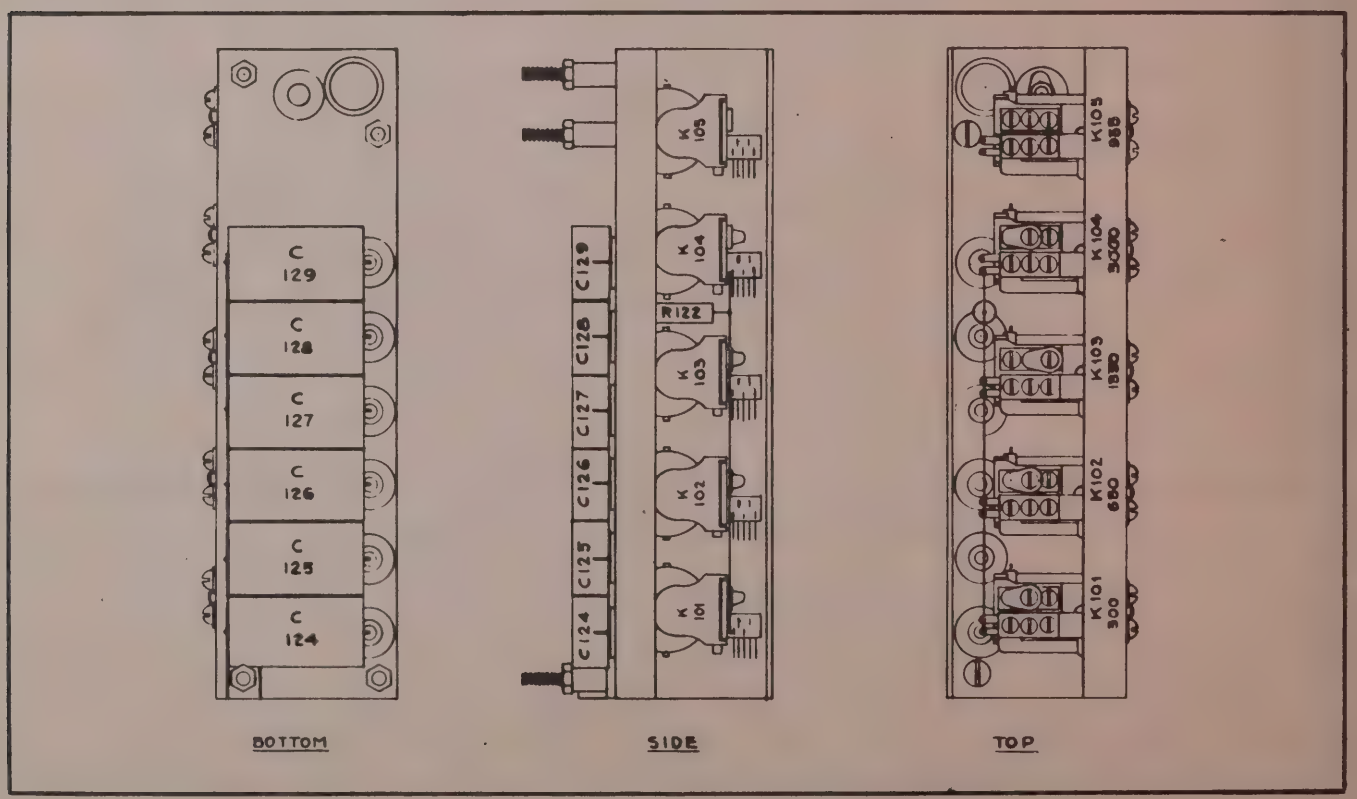


Figure 8-6. Relay Panel—Top, Bottom, and Side View

COMPONENT TABLE
*INDICATES GOVERNMENT FURNISHED EQUIPMENT

Item	*Quantity Required*	*Equipment Nomenclature*		*Spec. or Installation Drawing*
		Description	*Type No.*	
*1	1	Radio Receiver & Selector	R-116/ARW-26	
*2	2	Mounting	FT-441 (B)	
*3	1	Antenna	AS-234/ARW-26	
*4	1	Battery Box	CY-237/ARW-26	
†5	1	Cord	CX-662/ARW-26 (__ inches)	
†6	1	Cord	CX-661/ARW-26 (__ inches)	
†7	1	Cord	CG-312/ARW-26 (__ inches)	
†8	1	Cord	CX-664/ARW-26 (__ inches)	See Note 1.

†Required but not supplied.

NOTES: 1. Cord CX-664/ARW-26 to be connected to chute solenoid at installation. Wire numbers for identification only.

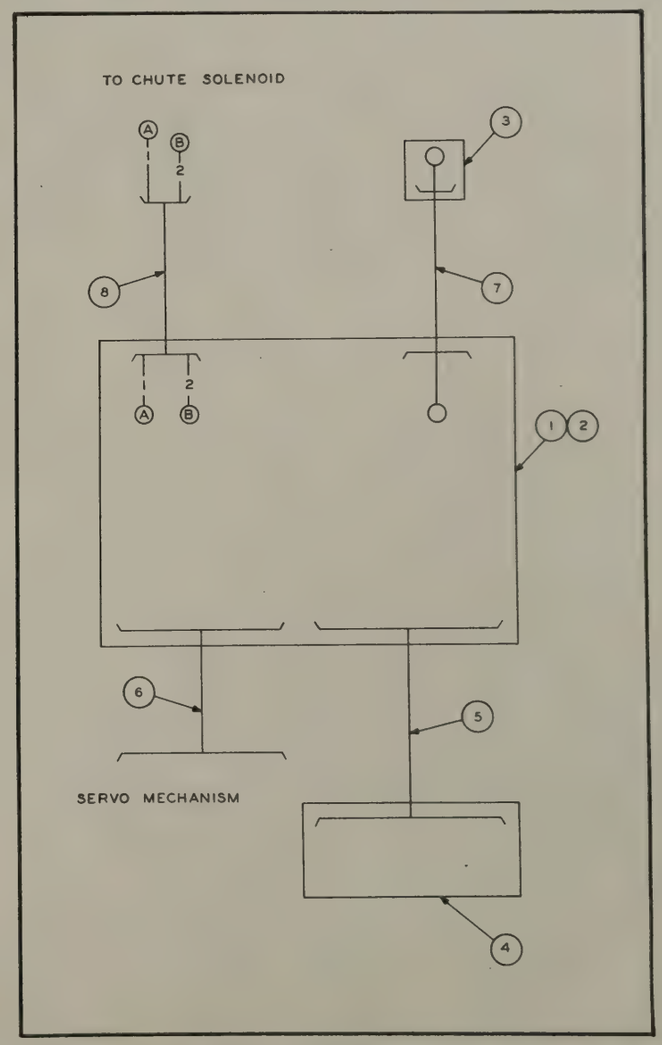


Figure 8-7. Radio Receiving Set AN/ARW-26—Typical Cording Diagram

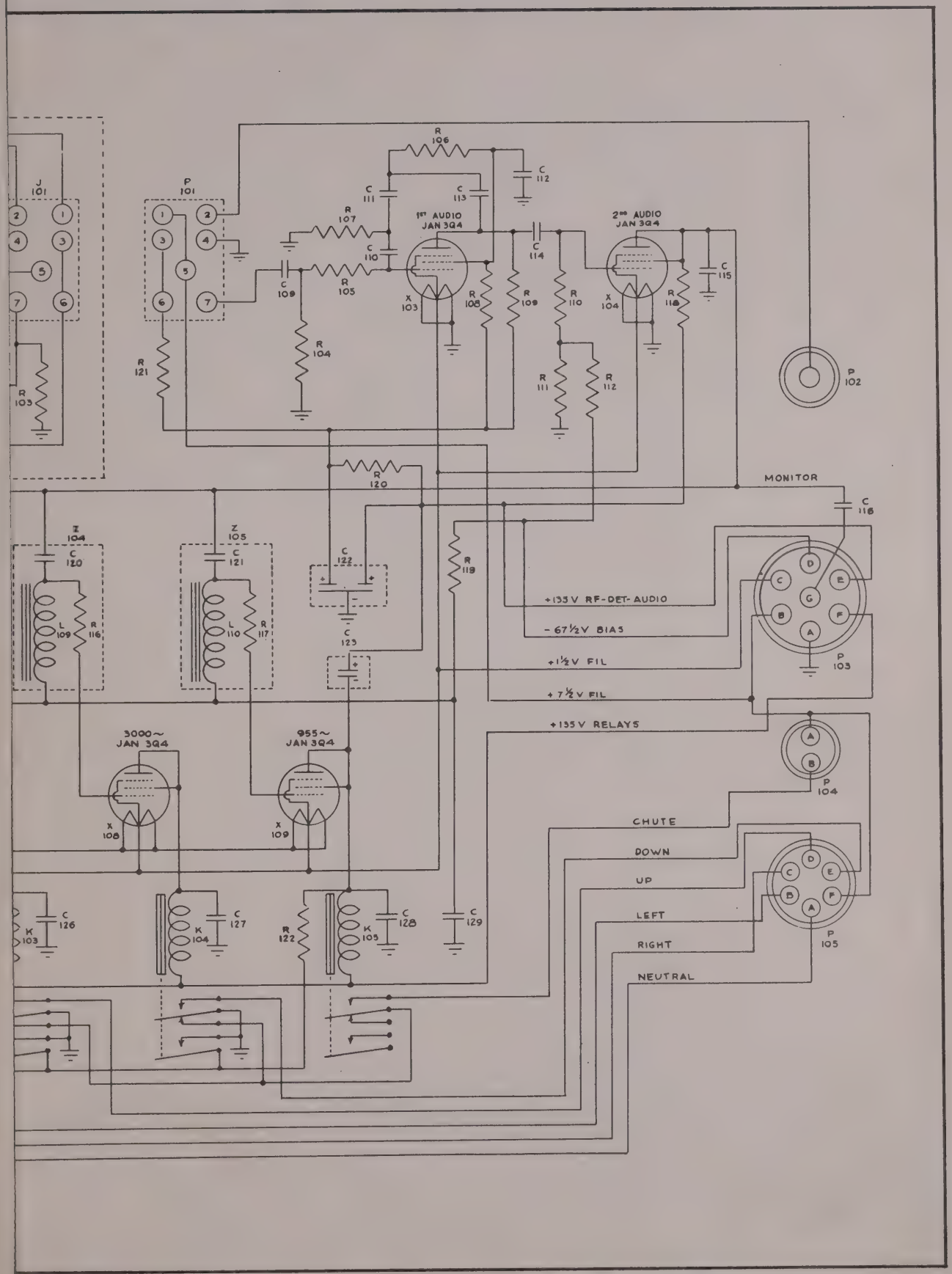


Figure 8-8. Radio Receiver and Selector R-116/ARW-26—Schematic Diagram

CAPACITORS

C-101	5 mmfd.
C-102	500 mmfd.
C-103	500 mmfd.
C-104	5 mmfd.
C-105	5 mmfd.
C-106	50 mmfd.
C-107	500 mmfd.
C-108	105 mmfd.
C-109	5000 mmfd.
C-110	50 mmfd.
C-111	100 mmfd.
C-112	0.2 mfd.
C-113	100 mmfd.
C-114	5000 mmfd.
C-115	1000 mmfd.
C-116	1000 mmfd.
C-117	5000 mmfd.
C-118	5000 mmfd.
C-119	2000 mmfd.
C-120	1000 mmfd.
C-121	3000 mmfd.
C-122	20-20 mmfd.
C-123	15 mmfd.
C-124	0.2 mfd.
C-125	0.2 mfd.
C-126	0.2 mfd.
C-127	0.2 mfd.
C-128	0.2 mfd.
C-129	0.2 mfd.

RESISTORS

R-101	250 ohms
R-102	25,000 ohms
R-103	25,000 ohms
R-104	1 megohm
R-105	500,000 ohms
R-106	100,000 ohms
R-107	100,000 ohms
R-108	2 megohms
R-109	200,000 ohms
R-110	1 megohm
R-111	500 ohms
R-112	8000 ohms
R-113	50,000 ohms
R-114	50,000 ohms
R-115	50,000 ohms
R-116	50,000 ohms
R-117	50,000 ohms
R-118	25,000 ohms
R-119	1 megohm
R-120	5000 ohms
R-121	5000 ohms
R-122	15,000 ohms

TUBES

V-101	JAN-9003
V-102	JAN-9002
V-103	JAN-3Q4
V-104	JAN-3Q4
V-105	JAN-3Q4
V-106	JAN-3Q4
V-107	JAN-3Q4
V-108	JAN-3Q4
V-109	JAN-3Q4

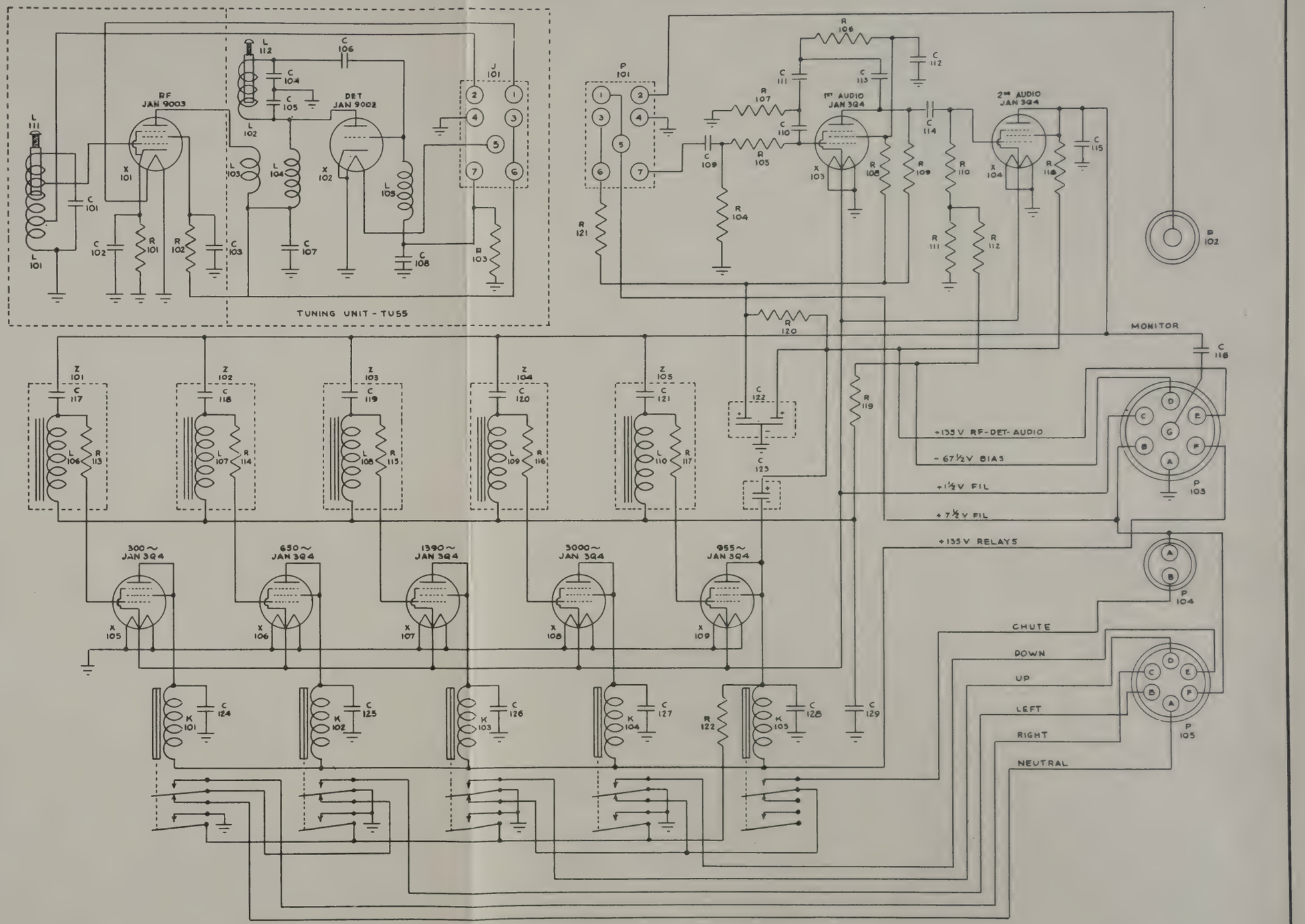


Figure 8-8. Radio Receiver and Selector R-116/ARW-26—Schematic Diagram

RESTRICTED

Interim Instructions

for

AN/ARW-26A
AIRCRAFT RADIO EQUIPMENT

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Approved 1 July 1945

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LIST OF REVISED PAGES ISSUED

NOTE.—A heavy black vertical line, in the outer margin of revised pages (the left margin for left-hand columns, and the right margin for right-hand columns), indicates the extent of the revision. This line is omitted where more than 50 percent of the page is revised.

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ADDENDUM TO AN 16-30 ARW-26-2
HANDBOOK OF MAINTENANCE INSTRUCTIONS
FOR
RADIO RECEIVING SET AN/ARW-26

AN/ARW-26A

The AN/ARW-26A equipment is similar to the AN/ARW-26 equipment except that it is supplied with tuning unit TN-109/ARW-26A and can be adjusted to operate on any desired carrier frequency between 60 and 74 megacycles.

1. EQUIPMENT SUPPLIED.

The following table lists equipment supplied with the AN/ARW-26A equipment:

QUANTITY PER EQUIPMENT	NAME OF PART	ARMY TYPE DESIGNATION	NAVY TYPE DESIGNATION	OVERALL DIMENSIONS (INCHES)	WEIGHT (LBS.)
1	Radio Receiver and Selector	R-166/ARW-26	R-166/ARW-26	5 5/8 x 8 5/16 x 75/8	4.4
1	Tuning Unit	TU-55	TN-109/ARW-26A	4 1/8 x 2 1/8 x 2 5/8	.4
1	Antenna	AS-254/ARW-26	AS-234/ARW-26	12 5/8 long	.3
1	Battery Box	CY-237/ARW-26	CY-237/ARW-26	14 1/8 x 3 13/16 x 4 31/64	1.5
2	Mounting	FT-441-B	FT-441-B		.1 ea.
1	Cord	CG-312/ARW-26 (—ft. —in.)	CG-312/ARW-26 (1 ft. 2½ in.)		
1	Cord	CX-661/ARW-26 (—ft. —in.)	CX-661/ARW-26 (6 ft. 2 in.)		
1	Cord	CX-662/ARW-26 (—ft. —in.)	CX-662/ARW-26 (4 ft. 4 in.)		

2. EQUIPMENT REQUIRED BUT NOT SUPPLIED.

The following table lists equipment required but not supplied with the AN/ARW-26A equipment.

QUANTITY PER EQUIPMENT	NAME OF PART	ARMY TYPE DESIGNATION	NAVY TYPE DESIGNATION	OVERALL DIMENSIONS (INCHES)	WEIGHT (LBS.)
1	Cord	CX-664/ARW-26 (—ft. —in.)	CX-664/ARW-26 (2 ft. 5 in.)		
1	Battery (1½ volt)	BA-35	19010	2 5/8 x 2 5/8 x 4 1/16	1.5
2	Battery (6 volt Burgess Type, F4P1, or Equivalent)	BA-210/U	BA-210/U	2 5/8 x 2 5/8 x 4 1/16	1.5 ea.
3	Battery (67½ volt Every-ready Type 467, or Equivalent)	BA-51	19032	2 5/8 x 1 1/4 x 3 1/2	0.75 ea.

3. TEST EQUIPMENT REQUIRED BUT NOT SUPPLIED WITH AN ARW-26A EQUIPMENT.

QUANTITY PER EQUIPMENT	NAME OF PART	TYPE DESIGNATION	REMARKS
1	Transmitter	Army RC-56A	Used at low power for Testing
1	Signal Generator		60 to 74 MC Range
1	Audio Signal Generator		300 to 3000 CPS Range
1	Oscilloscope		
1	Volt-Ohm-Milliammeter		1000 ohms per volt
1	Headset Adaptor	Army MC-385	Used with low impedance headset
1	Headset	Navy H-41 AR	

4. TUNING UNIT TN-109/ARW-26A.

a. This is a plug-in unit with electrical connection made by means of the seven-contact socket located on the bottom end of the unit. Ground connection is made by contact 4 of the seven-contact connector.

b. All units leave the factory adjusted to 68 megacycles. To alter the receiver frequency adjust the r-f and the detector adjustments located on the top of the unit to any desired frequency between 60 and 74 megacycles.

c. Follow the tuning procedure given under Section II, Paragraph 2 of the basic Handbook of Maintenance Instructions for AN/ARW-26 Aircraft Radio Equipment (AN 16-30ARW26-2). To adjust the tuning unit to a lower frequency, turn the RF and DET adjustment screws (See Figure 2-3, same location as on TU-55 Tuning Unit) clockwise. To change the unit back to a higher frequency, turn the adjustment screws counterclockwise.

WIRE CODING
CROSS-REFERENCE TABLE

BENDIX # CODING	SETCHELL-CARLSON COLOR CODING	PLUG #	PIN #
610	NONE	103	A
611	BLACK TR	"	B
612	ORANGE TR	"	C
613	YELLOW TR	"	D
620	RED TR—BLUE TR	"	E
622	RED TR	"	F
630	MAROON TR	"	G
611	BLACK TR	104	A
640	RED TR—BLUE TR	104	B
643	BLUE TR—YEL TR	105	A
645	RED TR—BLUE TR	"	B
646	ORANGE TR	"	C
647	BROWN TR	"	D
648	GREEN TR	"	E
611	BLACK TR	"	F
* 614			
* 621			
* 623			
* 631			
* 615			

* THESE WIRES ON SETCHELL-CARLSON UNIT ARE POINT TO POINT JUMPER WIRES AND DO NOT HAVE ANY SPECIAL COLOR CODE.

WIRE CODING
CROSS-REFERENCE TABLE

BENDIX # CODING	SETCHELL-CARLSON COLOR CODING	PLUG #	PIN #
610	NONE	103	A
611	BLACK TR	"	B
612	ORANGE TR	"	C
613	YELLOW TR	"	D
620	RED TR—BLUE TR	"	E
622	RED TR	"	F
630	MAROON TR	"	G
611	BLACK TR	104	A
640	RED TR—BLUE TR	104	B
643	BLUE TR—YEL TR	105	A
645	RED TR—BLUE TR	"	B
646	ORANGE TR	"	C
647	BROWN TR	"	D
648	GREEN TR	"	E
611	BLACK TR	"	F
* 614			
* 621			
* 623			
* 631			
* 615			

* THESE WIRES ON SETCHELL-CARLSON
UNIT ARE POINT TO POINT JUMPER WIRES
AND DO NOT HAVE ANY SPECIAL COLOR CODE

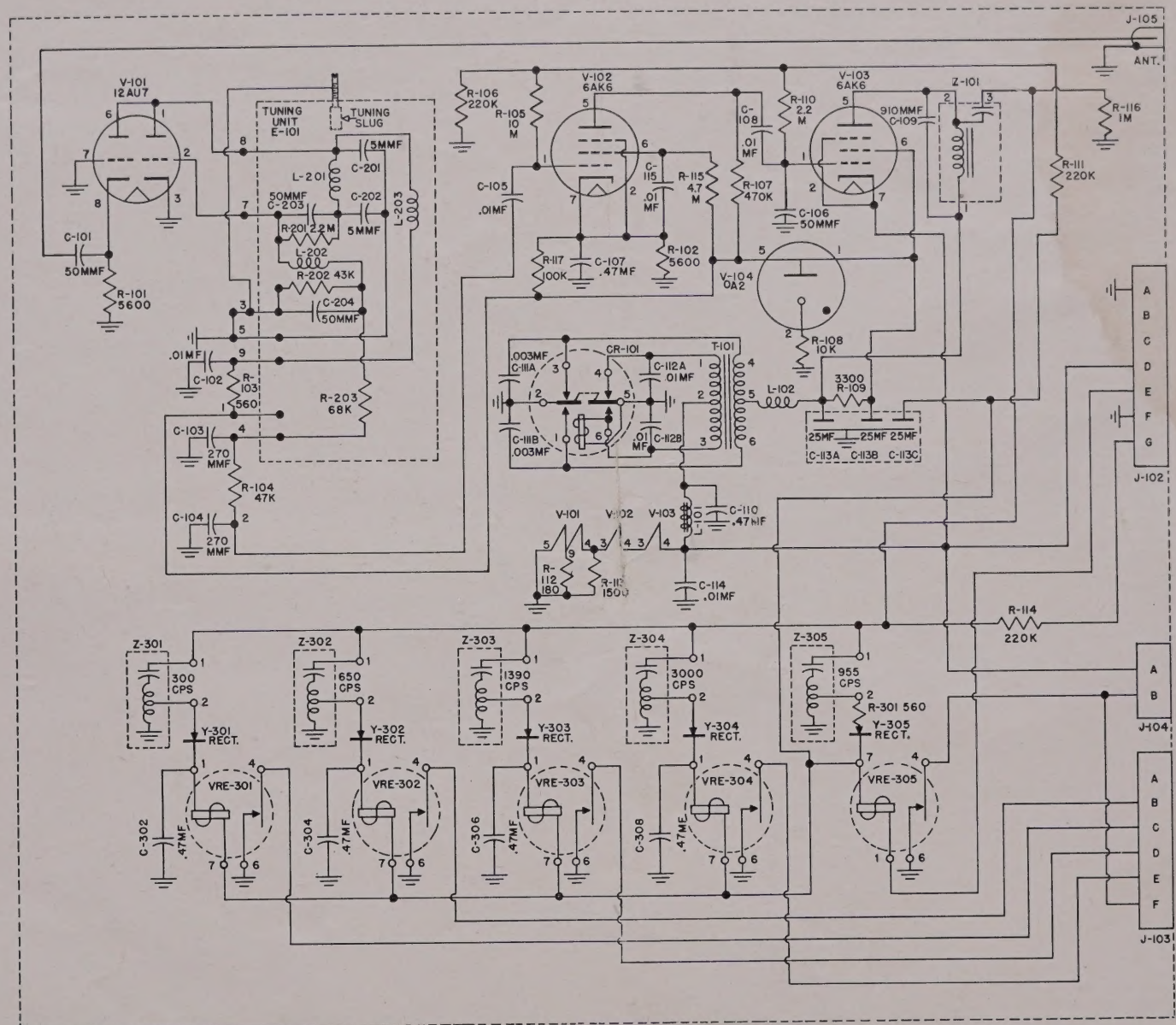
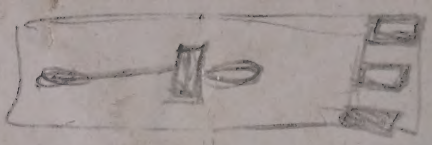
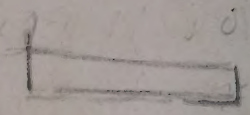
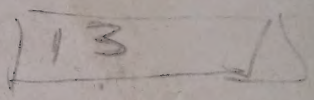


FIGURE 2. SCHEMATIC DIAGRAM OF TYPE R-438B/ARW-26AY RADIO RECEIVER-SELECTOR

Motorola

Recev 15

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